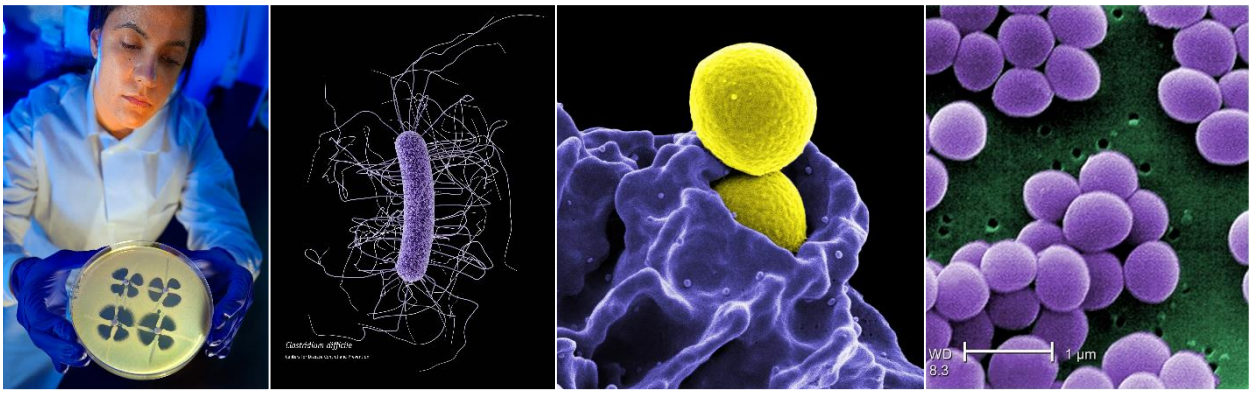

Georgia Department of Public Health

Healthcare-Associated Infections Report

January 1, 2015 to December 31, 2016

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Executive Summary

Healthcare-associated infections (HAI) are a serious public health threat, affecting 1 in 32 hospital inpatients[1] and causing up to $45 billion annually in direct hospital costs[2]. In 2013, the HAI reportable to the Centers for Medicaid and Medicare Services (CMS) Quality Reporting Program were made reportable to the Georgia Department of Public Health via the Centers for Disease Control and Prevention's National Healthcare Safety Network (NHSN)—a secure, web-based HAI tracking system. This report provides aggregate Georgia HAI data, to compare state performance to national and state goals, and to measure progress over 2015 and 2016.

The HAI included in this report are:

- Central line-associated bloodstream infections (CLABSI)
- Catheter-associated urinary tract infections (CAUTI)
- Surgical site infections (SSI) following colon surgeries (COLO)
- Surgical site infections following abdominal hysterectomies (HYST)
- Laboratory-identified (LabID) methicillin-resistant *Staphylococcus aureus* (MRSA) found in the bloodstream
- Laboratory-identified *Clostridium difficile* in stool (CDI)

The facility and location types included in this report are:

- Acute Care Hospitals (ACH)
    - Adult and Pediatric Intensive Care Units (ICU)
    - Neonatal Intensive Care Units (NICU)
    - Adult and Pediatric Wards (Wards)
- Long-Term Acute Care Hospitals (LTACH)
- Inpatient Rehabilitation Facilities (IRF)

Performance is assessed using the standardized infection ratio (SIR). This metric is calculated by dividing the number of infections observed by the number of infections predicted. Lower SIR (< 1.0) indicate better performance. SIR goals are set by the United States Department of Health and Human Services (HHS). Progress made toward these goals is assessed using the number of infections needed to prevent (NNTP). NNTP at or below zero indicate the HHS SIR goal has been met or surpassed.

Device use is assessed using the standardized utilization ratio (SUR), which is calculated by dividing the number of device days observed by the number of device days predicted. Lower SUR (< 1.0) indicate lower than predicted device utilization, which may indicate reduced risk of device-associated HAI.

Pathogen distribution and antimicrobial susceptibility data are assessed to identify common pathogens for each HAI and to assess changes in the proportion of resistant pathogens.

[1] Magill SS, Wilson LE, Thompson DL, Ray SM, Nadle J, Lynfield R, Janelle SJ, Kainer MA, Greissman S, Dumyati S, Beldavs ZG, Edwards JR. Reduction in the prevalence of healthcare-associated infections in U.S. acute care hospitals, 2015 versus 2011. Abstract presented at: National Trends in HAIs. IDWeek 2017; 2017 Oct 3-8; San Diego, CA.

[2] Scott RD II. The Direct Medical Costs of Healthcare-Associated Infections in U.S. Hospitals and the Benefits of Prevention. 2009. Retrieved from: http://www.cdc.gov/HAI/pdfs/hai/Scott_CostPaper.pdf. Accessed January 14, 2016.

Key Findings

Improved Areas

The 2016 SIR was significantly lower than the 2015 national baseline SIR of 1.0 in the following areas:

- CDI in ACH was 12% lower
- CDI in IRF was 51% lower
- CDI in LTACH was 18% lower
- MRSA in LTACH was 55% lower

The 2020 HHS SIR Reduction Goals were met in the following areas:

- CAUTI in IRF with an SIR of 0.66
- CDI in IRF with an SIR of 0.49
- MRSA in LTACH with an SIR of 0.45

Improvement Needed

The 2016 SIR was significantly higher than the 2015 national baseline SIR of 1.0 in the following areas:

- CLABSI in ICU was 24% higher
- CLABSI in LTACH was 20% higher
- CAUTI in LTACH was 37% higher

Improvement Possible

The 2016 SIR was not significantly different from the 2015 national baseline SIR of 1.0 in the following areas:

- CLABSI in Wards and NICU
- CAUTI in ICU, Wards, and IRF
- SSI COLO and HYST
- MRSA in ACH and IRF

Table 1 summarizes HAI data submitted to the Georgia Department of Public Health for 2015 and 2016. The appendix includes links for additional information and a list of acronyms.

Table 1: Summary of HAI Data Submitted to NHSN, by Year, Georgia 2015-2016

2015																
	CLABSI				CAUTI				SSI		MRSA			CDI		
Unit or Type	ICU	Wards	NICU	LTACH	ICU	Wards	IRF	LTACH	COLO	HYST	ACH	IRF	LTACH	ACH	IRF	LTACH
No. Facilities	89	97	32	16	89	97	5	16	88	86	102	5	15	102	5	15
No. Observed	355	267	85	108	532	295	5	200	300	86	330	4	29	2,752	16	181
No. Predicted	291.8	245.0	62.7	120.1	451.6	274.8	5.5	161.6	241.5	79.3	264.5	0.9	34.0	2862.5	22.2	171.0
SIR	1.22 ^	1.09	1.36 ^	0.90	1.18 ^	1.07	0.91	1.24 ^	1.24 ^	1.09	1.25 ^	.	0.85	0.96 ˅	0.72	0.91
HHS SIR Goal	0.50	0.50	0.50	0.50	0.75	0.75	0.75	0.75	0.70	0.70	0.50	0.50	0.50	0.70	0.70	0.70
NNTP	209	145	54	48	194	89	1	79	131	31	198	.	12	749	1	43
2016																
	CLABSI				CAUTI				SSI		MRSA			CDI		
Unit or Type	ICU	Wards	NICU	LTACH	ICU	Wards	IRF	LTACH	COLO	HYST	ACH	IRF	LTACH	ACH	IRF	LTACH
No. Facilities	88	97	31	16	88	97	5	16	87	82	102	5	16	102	5	16
No. Observed	375	278	70	130	474	272	3	199	260	72	298	0	13	2,623	12	171
No. Predicted	301.9	258.9	62.5	108.3	467.7	278.2	4.6	145.6	258.1	79.8	275.4	1.1	29.0	2967.1	24.4	208.9
SIR	1.24 ^	1.07	1.12	1.20 ^	1.01	0.98	0.65	1.37 ^	1.01	0.90	1.08	0.00	0.45 ˅	0.88 ˅	0.49 ˅	0.82 ˅
HHS SIR Goal	0.50	0.50	0.50	0.50	0.75	0.75	0.75	0.75	0.70	0.70	0.50	0.50	0.50	0.70	0.70	0.70
NNTP	225	149	39	76	124	64	0	90	80	17	161	.	0	546	0	25
SIR Percent Change																
Percent Change	1.6%	1.8%	-17.6%	33.3%*	-14.4%*	-8.4%	-27.5%	10.5%	-18.5%*	-17.4%	-13.6%	.	-47.1%*	-8.3%*	-31.9%	-9.9%

^ Indicates an SIR value that is significantly higher than the national baseline; ˅ Indicates an SIR value that is significantly lower than the national baseline; * indicates significance at the 0.05 level; . indicates no SIR or NNTP could be calculated

Background

Healthcare-associated infections (HAI) are infections that develop during or soon after medical treatment for a separate medical condition. HAI can result from patients' own bacteria, be associated with surgery or invasive medical devices, or be due to exposure to bacteria, viruses, fungi, or spores transmitted from contaminated healthcare workers' hands, environmental surfaces, or medical equipment. Bacteria found in healthcare settings are often resistant to commonly prescribed antibiotics, making HAI more difficult to treat.

A 2015 survey of 143 acute care hospitals across the US found that on any given day, 1 in 32 inpatients had at least 1 HAI[3]. The direct cost of treating HAI ranges from $28.4 to $45 billion per year for US healthcare facilities. Preventing 20% of HAI could save up to $6.8 billion, and preventing 70% of HAI could save up to $31.5 billion per year[4].

In January 2013, the HAI reportable to the Centers for Medicaid and Medicare Services' (CMS) Quality Reporting Program were added to the Georgia Department of Public Health (DPH) Notifiable Disease List. Facilities self-report data to DPH using the Centers for Disease Control and Prevention's (CDC's) National Healthcare Safety Network (NHSN), a secure, web-based HAI tracking system. Under Georgia law (O.C.G.A Sections 32-2-12 and 31-5-5), data submitted to DPH through NHSN remain confidential.

The HAI included in this report are:

1. Central line-associated bloodstream infections (CLABSI)
2. Catheter-associated urinary tract infections (CAUTI)
3. Surgical site infections (SSI) following colon surgeries (COLO)
4. Surgical site infections following abdominal hysterectomies (HYST)
5. Laboratory-identified (LabID) methicillin-resistant *Staphylococcus aureus* (MRSA) found in the bloodstream
6. Laboratory-identified *Clostridium difficile* in stool (CDI)

The facility and location types included in this report are:

- Acute Care Hospitals (ACH)
    - Adult and Pediatric Intensive Care Units (ICU)
    - Neonatal Intensive Care Units (NICU)
    - Adult and Pediatric Wards (Wards)
- Long-Term Acute Care Hospitals (LTACH)
- Inpatient Rehabilitation Facilities (IRF)

This report includes data from 123 facilities, including 102 ACH, 16 LTACH, and 5 IRF. Facilities reported up to 6 HAI, depending on (1) CMS reporting requirements and (2) applicability of the HAI measure. Any data that have been voluntarily reported by facility types or location types that are not required by CMS are not included.

[3] Magill SS, Wilson LE, Thompson DL, Ray SM, Nadle J, Lynfield R, Janelle SJ, Kainer MA, Greissman S, Dumyati S, Beldavs ZG, Edwards JR. Reduction in the prevalence of healthcare-associated infections in U.S. acute care hospitals, 2015 versus 2011. Abstract presented at: National Trends in HAIs. IDWeek 2017; 2017 Oct 3-8; San Diego, CA.

[4] Scott RD II. The Direct Medical Costs of Healthcare-Associated Infections in U.S. Hospitals and the Benefits of Prevention. 2009. Retrieved from: http://www.cdc.gov/HAI/pdfs/hai/Scott_CostPaper.pdf. Accessed January 14, 2016.

Methods

Infection data analyzed in this report were downloaded from NHSN on September 14, 2017.

SIR

The standardized infection ratio (SIR) is a summary measure that can be used to track HAI over time and can be calculated on a variety of levels, including unit, facility, state, and nation. The SIR compares the number of HAI observed to the number of HAI that was predicted.

The number of predicted HAI is calculated by risk-adjusted models created by CDC. Risk adjustment takes into account factors that may impact the number of HAI a facility reports, such as location type, number of beds, medical school affiliation, and facility type. The models were updated to be based on data submitted to NHSN in 2015, referred to as the "2015 rebaseline." When evaluating a facility's performance, the facility's SIR is compared to the national baseline SIR value 1.0 to determine if the facility is performing better, worse, or about the same as the nation in 2015.

$$\text{SIR} = \frac{\text{Number of Observed Infections}}{\text{Number of Predicted Infections}}$$

When the SIR is calculated, there are three possible results:

- The SIR is **less than 1.0**: there were fewer infections reported than predicted
- The SIR is **equal to 1.0**: there were as many infections reported as predicted
- The SIR is **greater than 1.0**: there were more infections reported than predicted

NNTP

HAI data are compared to the United States Health and Human Services (HHS) National Action Plan HAI reduction goals using the number of infections needed to prevent (NNTP) metric. The NNTP shows the number of infections that the state as a whole must prevent in one year to reach the 2020 HHS HAI national reduction goals [Table 2]. The NNTP is also referred to as the cumulative attributable difference (CAD) by CDC.

$$\text{NNTP} = \text{Number of Observed Infections} - (\text{HHS Reduction Goal} * \text{Number of Predicted Infections})$$

The NNTP is part of the CDC's Targeted Assessment for Prevention strategy, which seeks to identify areas in need of targeted HAI prevention activities and quality improvement.

When the NNTP is calculated, there are three possible results:

- The NNTP is **less than 0**: the SIR was lower (better) than the HHS reduction goal
- The NNTP is **equal to 0**: the SIR was the same as the HHS reduction goal
- The NNTP is **greater than 0**: the SIR was higher (worse) than the HHS reduction goal

Table 2: 2020 HHS HAI National Reduction Goals

2020 HAI Reduction Goal	Applicable HAI Types
Reduce by 25%, SIR goal = 0.75	CAUTI
Reduce by 30%, SIR goal = 0.70	CDI, COLO, HYST
Reduce by 50%, SIR goal = 0.50	CLABSI, MRSA

SUR

Use of invasive devices is a risk factor for the acquisition of HAI. The standardized utilization ratio (SUR) is a scalable measure that can be calculated on a variety of levels, including unit, facility, state, and nation. The SUR compares the number of device days observed to the number of device days that were predicted.

As with SIR, the number of predicted device days is calculated by risk-adjusted models created by CDC that account for factors such as location type, number of beds, medical school affiliation, and facility type. When evaluating a facility's performance, the facility's SUR is compared to the national baseline SUR value 1.0 to determine if the facility is performing better, worse, or about the same as the nation in 2015.

$$\text{SUR} = \frac{\text{Number of Observed Device Days}}{\text{Number of Predicted Device Days}}$$

When the SUR is calculated, there are three possible results:

- The SUR is **less than 1.0**: there were fewer device days reported than predicted
- The SUR is **equal to 1.0**: there were as many device days reported as predicted
- The SUR is **greater than 1.0**: there were more device days reported than predicted

Pathogen Distribution

When an HAI is reported, up to three pathogens can be entered as causative agents. Antimicrobial susceptibility data are available for select species and phenotypes:

- Carbapenem-resistant *Enterobacteriaceae* (CRE)
- Carbapenem-resistant *Escherichia coli*
- Carbapenem-resistant *Enterobacter* spp.
- Carbapenem-resistant *Klebsiella pneumonia* or *K. oxytoca*
- Carbapenem-non-susceptible (CarbNS) *Acinetobacter* spp.
- Carbapenem-non-susceptible *Pseudomonas aeruginosa*
- Extended-spectrum cephalosporin-resistant (ESC) *Escherichia coli*
- Extended-spectrum cephalosporin-resistant *Klebsiella pneumonia* or *K. oxytoca*
- Methicillin-resistant *Staphylococcus aureus* (MRSA)
- Multidrug-resistant (MDR) *Pseudomonas aeruginosa*
- Multidrug-resistant *Acinetobacter* spp.
- Vancomycin-resistant *Enterococcus faecalis* (VRE)
- Vancomycin-resistant *Enterococcus faecium*

When the same organism is entered with two different susceptibility patterns, the most resistant one is retained and the other deleted. When the same organism is listed as the cause of multiple simultaneous HAI (e.g., a CLABSI and a secondary bloodstream infection), the organism is only reported once.

Results

Facility Characteristics

All 123 facilities completed the required NHSN facility survey in both 2015 and 2016. The surveys provided medical school affiliation and bed size, which are two factors included in the SIR risk adjustment performed by CDC for CLABSI, CAUTI, and LabID infections. A facility's medical school affiliation can be (1) major, meaning there is a program for medical students and post-graduate medical training; (2) graduate, meaning there is a program for post-graduate medical training; or (3) undergraduate, meaning there is a program for medical students only.

The majority of facilities in 2015 (99, 80.5%) and in 2016 (84, 68.3%) had no affiliation with a medical school. The most common type of medical school affiliation was major in both 2015 (10, 8.1%) and 2016 (17, 13.8%). The majority of facilities in 2015 (87, 70.7%) and in 2016 (86, 70.0%) had fewer than 200 beds [Table 3].

Table 3: Bed Size and Medical School Affiliation, Georgia 2015-2016

2015					
Beds	Major	Graduate	Undergraduate	No Affiliation	Total (%)
≤25	0	0	1	6	7 (5.7)
26-49	1	0	0	23	24 (19.5)
50-199	1	2	2	51	56 (45.5)
200-499	2	2	3	15	22 (17.9)
≥500	6	4	0	4	14 (11.4)
Total (%)	10 (8.1)	8 (6.5)	6 (4.9)	99 (80.5)	123 (100)
2016					
Beds	Major	Graduate	Undergraduate	No Affiliation	Total (%)
≤25	0	0	1	7	8 (6.5)
26-49	1	0	0	24	25 (20.3)
50-199	2	3	6	42	53 (43.1)
200-499	7	3	5	8	23 (18.7)
≥500	7	4	0	3	14 (11.4)
Total (%)	17 (13.8)	10 (8.1)	12 (9.8)	84 (68.3)	123 (100)

Type of patient care location is another risk factor that can affect number of CLABSI and CAUTI reported by facilities, due to differences in patient acuity. During 2015 and 2016, intensive care units (ICU), select inpatient wards, long-term acute care (LTAC) locations, and inpatient rehabilitation facilities were required to report CLABSI and CAUTI.

The proportions of reporting location types were similar in 2015 and 2016, with the most common reporting locations as medical/surgical wards (~26%), medical wards (~18%), and medical/surgical ICU (~16%); [Table 4].

Table 4: Number and Type of Locations Required to Report HAI Data, Georgia 2015-2016

CDC-Designated Location Type	2015 n (%)	2016 n (%)
Medical/Surgical Ward	137 (25.6)	141 (26.0)
Medical Ward	97 (18.1)	101 (18.6)
Medical/Surgical ICU	87 (16.3)	84 (15.5)
Surgical Ward	51 (9.5)	52 (9.6)
Long-Term Acute Care Ward	24 (4.5)	24 (4.4)
Neonatal ICU (Level II/III)	22 (4.1)	21 (3.9)
Medical ICU	21 (3.9)	20 (3.7)
Surgical Cardiothoracic ICU	17 (3.2)	17 (3.1)
Medical Cardiac ICU	14 (2.6)	14 (2.6)
Pediatric Medical/Surgical Ward	14 (2.6)	14 (2.6)
Neonatal ICU (Level III)	13 (2.4)	15 (2.8)
Neurosurgical ICU	9 (1.7)	9 (1.7)
Surgical ICU	5 (0.9)	5 (0.9)
Inpatient Rehabilitation Facility	5 (0.9)	5 (0.9)
Neurologic ICU	4 (0.7)	5 (0.9)
Trauma ICU	4 (0.7)	4 (0.7)
Pediatric Medical/Surgical ICU	3 (0.6)	3 (0.6)
Pediatric Medical Ward	3 (0.6)	3 (0.6)
Burn ICU	2 (0.4)	2 (0.4)
Long-Term Acute Care ICU	2 (0.4)	2 (0.4)
Prenatal ICU	1 (0.2)	1 (0.2)
Total	**535 (100)**	**542 (100)**

The remainder of the report consists of five sections, one per HAI. In each section, the report summarizes trends for 2015-2016, highlights findings by facility and unit type, and follows with supporting tables and figures.

Central Line-Associated Bloodstream Infections

Overview

A central line is a catheter that is inserted into a large vein and terminates at or near the heart in one of the great vessels. Central lines are used for infusing fluids or medications, withdrawing blood, or hemodynamic monitoring. When bacteria enter the bloodstream through the central line, bloodstream infections can occur.

Bloodstream infections meet the NHSN definition of a central line-associated bloodstream infection (CLABSI) when the central line is in place for at least 2 calendar days on the day the infection is recognized and is either still in place or was removed the day prior.

Overall CLABSI Key Findings

CLABSI SIR from the first quarter of 2015 to the fourth quarter of 2016:

- In ACH, adult and pediatric ICU increased from 1.06 to 1.18
- In ACH, adult and pediatric wards decreased from 1.23 to 0.93
- In ACH, NICU decreased from 1.64 to 0.97 [Figure 1]
- LTACH increased from 0.65 to 1.41 [Figure 2]

Figure 1: CLABSI SIR for ACH, by Location Type and Quarter, Georgia 2015-2016

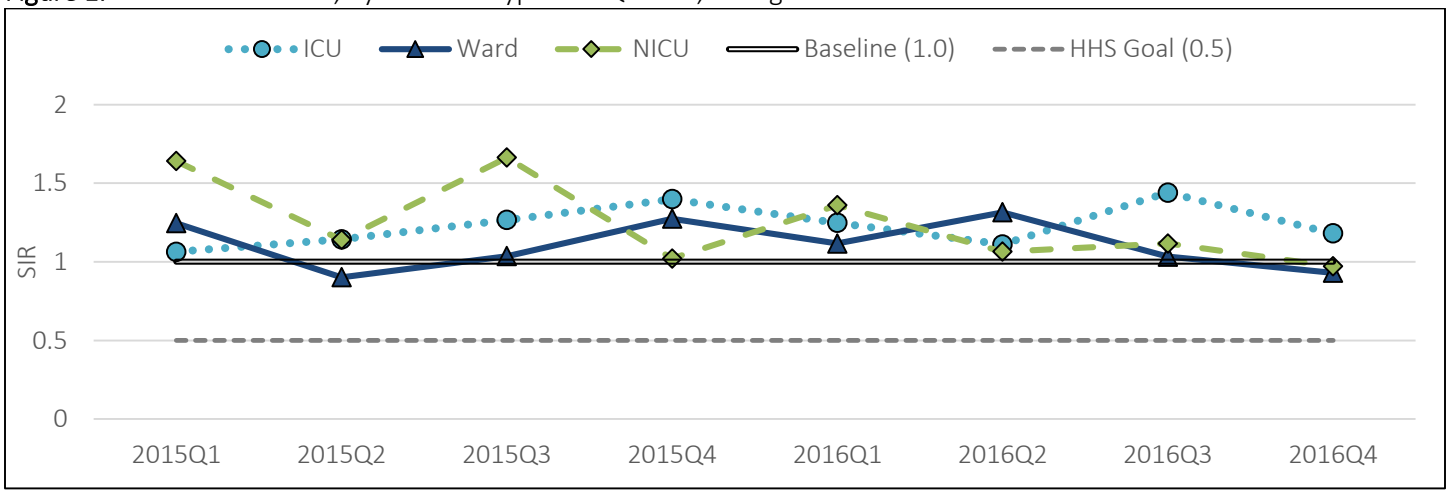
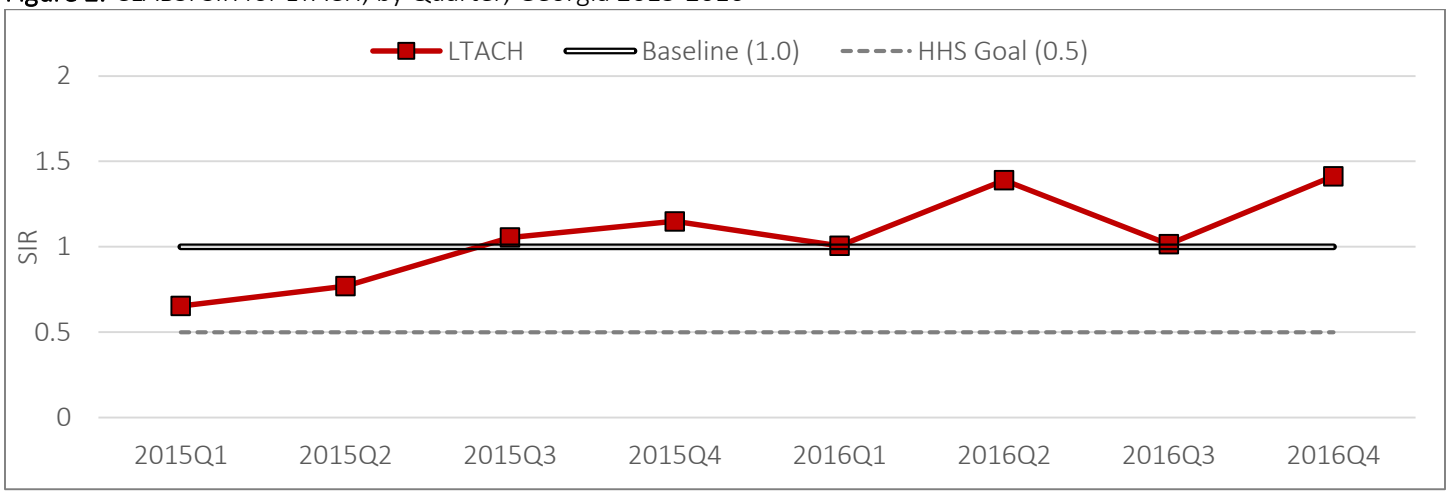


Figure 2: CLABSI SIR for LTACH, by Quarter, Georgia 2015-2016



CLABSI in Adult and Pediatric Intensive Care Units in Acute Care Hospitals

Characteristics of Reporting Units

In 2015, 89 ACH reported CLABSI from 167 adult and pediatric intensive care units (ICU); in 2016, 88 ACH reported from 164 ICU.

SIR by Quarter

The SIR increased from 1.06 in first quarter of 2015 to 1.18 in fourth quarter of 2016 [Figure 1].

SIR and NNTP by Year

The 2015 SIR was 1.22 (95% CI 1.10, 1.35), meaning there were 22% more CLABSI than predicted. The 2015 SIR was not significantly different from the national baseline and a reduction of 209 CLABSI was needed to reach the HHS SIR goal of 0.50.

The 2016 SIR was 1.24 (95% CI 1.12, 1.37), meaning there were 24% more CLABSI than predicted. The 2016 SIR was significantly higher than the national baseline and a reduction of 225 CLABSI was needed to reach the HHS SIR goal of 0.50 [Table 5]. There was no significant difference between the 2015 and 2016 SIR.

SIR by CDC-Designated Location Type

In 2015, compared to the national baseline, the SIR was significantly higher in burn, medical, and neurosurgical ICU and not significantly different in other reporting ICU. An SIR could not be calculated for prenatal ICU.

In 2016, compared to the national baseline, the SIR was significantly higher in burn ICU and not significantly different in other reporting ICU. An SIR could not be calculated for prenatal ICU [Table 5].

Standardized Utilization Ratio

In 2015, compared to the national baseline, the SUR was significantly higher in seven reporting ICU (burn, medical cardiac, surgical cardiothoracic, medical/surgical, pediatric medical/surgical, neurologic, and surgical ICU). The 2015 SUR was not significant in medical ICU and significantly lower in all other ICU types.

In 2016, compared to the national baseline, the SUR remained higher in six reporting ICU (burn, medical cardiac, surgical cardiothoracic, medical/surgical, neurologic and surgical ICU) and significantly lower in all other ICU types [Table 5].

Pathogens Identified

In 2015, 388 pathogens were isolated from the 355 reported CLABSI. The most commonly identified pathogens were *Candida* and other yeast species (27.3%), coagulase-negative *Staphylococcus* species (15.7%), and *Enterococcus* species (14.7%). Resistant phenotypes accounted for 8.5% of the identified pathogens.

In 2016, 431 pathogens were isolated from the 375 reported CLABSI. The most commonly identified pathogens were *Candida* and other yeast species (27.1%), *Enterococcus* species (16.7%), and coagulase-negative *Staphylococcus* species (14.2%) [Figure 3]. Resistant phenotypes accounted for 13% of the identified pathogens [Table 6].

CLABSI in Adult and Pediatric Wards in Acute Care Hospitals

Characteristics of Reporting Units

In 2015, 97 ACH reported CLABSI from 302 adult and pediatric wards; in 2016, 97 ACH reported from 311 wards.

SIR by Quarter

The SIR decreased from 1.23 in the first quarter of 2015 to 0.93 in the fourth quarter of 2016 [Figure 1].

SIR and NNTP by Year

The 2015 SIR was 1.09 (95% CI 1.10, 1.35), meaning there were 9% more CLABSI than predicted. The 2015 SIR was not significantly different from the national baseline and a reduction of 145 CLABSI was needed to reach the HHS SIR goal of 0.50.

The 2016 SIR was 1.07 (95% CI 0.95, 1.21), meaning there were 7% more CLABSI than predicted. The 2016 SIR was not significantly different from the national baseline and a reduction of 149 infections was needed to reach the HHS SIR goal of 0.50 [Table 5]. There was no significant difference between the 2015 and 2016 SIR.

SIR by CDC-Designated Location Type

In 2015, compared to the national baseline, the SIR was significantly higher in medical wards and not significantly different in other reporting wards. An SIR could not be calculated for pediatric medical wards.

In 2016, compared to the national baseline, the SIR was not significantly different in reporting wards. An SIR could not be calculated for pediatric medical wards [Table 5].

Standardized Utilization Ratio

In 2015, compared to the national baseline, the SUR was significantly higher in medical, pediatric medical, and medical/surgical wards and not significantly different in other reporting wards.

In 2016, compared to the national baseline SUR, the SUR was significantly higher in pediatric medical, pediatric medical/surgical, and surgical wards. The 2016 SUR was significantly lower in medical/surgical wards and not significantly different in medical wards [Table 5].

Pathogens Identified

In 2015, 317 pathogens were isolated from the 267 reported CLABSI. The most commonly identified pathogens were *Candida* and other yeast species (23.7%), coagulase-negative *Staphylococcus* species (13.9%), and *Enterococcus* species (13.2%). Resistant phenotypes accounted for 14.1% of the identified pathogens.

In 2016, 313 pathogens were isolated from the 278 reported CLABSI. The most commonly identified pathogens were *Candida* and other yeast species (24.3%), *Staphylococcus aureus* (16.0%), and *Enterococcus* species (13.4%) [Figure 4]. Resistant phenotypes accounted for 14.1% of the identified pathogens [Table 7].

CLABSI in Neonatal Intensive Care Units in Acute Care Hospitals

Characteristics of Reporting Units

In 2015, 32 ACH reported CLABSI from 35 neonatal intensive care units (NICU); in 2016, 31 ACH reported from 36 NICU.

SIR by Quarter

The SIR decreased from 1.64 in the first quarter of 2015 to 0.97 in the fourth quarter of 2016 [Figure 1].

SIR and NNTP by Year

The 2015 SIR was 1.36 (95% CI 1.09, 1.67), meaning there were 36% more CLABSI than predicted. The 2015 SIR was significantly higher than the national baseline and a reduction of 54 CLABSI was needed to reach the HHS SIR goal of 0.50.

The 2016 SIR was 1.12 (95% CI 0.88, 1.41), meaning there were 12% more CLABSI than predicted. The 2016 SIR was not significantly different from the national baseline and a reduction of 39 CLABSI was needed to reach the HHS SIR goal of 0.50 [Table 5]. There was no significant difference between the 2015 and 2016 SIR.

SIR by CDC-Designated Location Type

In 2015, compared to the national baseline, the SIR was significantly higher in Level III NICU and not significantly different in Level II/III NICU.

In 2016, compared to the national baseline, the SIR was not significantly different in Level II/III and Level III NICU [Table 5].

Standardized Utilization Ratio

In 2015, compared to the national baseline, the SUR was significantly higher in Level II/III NICU and significantly lower in Level III NICU.

In 2016, compared to the national baseline, the SUR was significantly lower in both Level III NICU and Level II/III NICU [Table 5].

Pathogens Identified

In 2015, 94 pathogens were isolated from the 85 reported CLABSI. The most commonly identified pathogens were *Staphylococcus aureus* (26.6%), coagulase-negative *Staphylococcus* species (13.8%), and *Enterococcus* species (13.8%). Resistant phenotypes accounted for 11.7% of the identified pathogens.

In 2016, 80 pathogens were isolated from the 70 reported CLABSI. The most commonly identified pathogens were coagulase-negative *Staphylococcus* species (21.3%), *Staphylococcus aureus* (20.0%), and *Candida* and other yeast species (16.3%) [Figure 5]. Resistant phenotypes accounted for 5.0% of the identified pathogens [Table 8].

CLABSI in Long-Term Acute Care Hospitals

Characteristics of Reporting Units

In 2015 and 2016, 16 LTACH reported CLABSI from 26 long-term acute care units.

SIR by Quarter

The SIR increased from 0.65 in the first quarter of 2015 to 1.41 in the fourth quarter of 2016 [Figure 2].

SIR and NNTP by Year

The 2015 SIR was 0.90 (95% CI 0.74, 1.08), meaning there were 10% fewer CLABSI than predicted. The 2015 SIR was not significantly different from the national baseline and a reduction of 48 infections was needed to reach the HHS SIR goal of 0.50.

The 2016 SIR was 1.20 (95% CI 1.01, 1.42), meaning there were 20% more CLABSI than predicted. The 2016 SIR was not significantly different from the national baseline and a reduction of 76 infections was needed to reach the HHS SIR goal of 0.50 [Table 5]. There was a significant increase between the 2015 and 2016 SIR.

SIR by CDC-Designated Location Type

In 2015, compared to the national baseline, the SIR was significantly lower in long-term acute care ICU and not significantly different in long-term acute care wards.

In 2016, compared to the national baseline, the SIR was significantly higher in long-term acute care wards and not significantly different in long-term acute care ICU [Table 5].

Standardized Utilization Ratio

In both 2015 and 2016, compared to the national baseline, the SUR was significantly higher in long-term acute care ICU and wards [Table 5].

Pathogens Identified

In 2015, 122 pathogens were isolated from the 108 reported CLABSI. The most commonly identified pathogens were *Enterococcus* species (19.7%), coagulase-negative *Staphylococcus* species (14.8%), *Candida* and other yeast (13.1%), and *Klebsiella* species (13.1%). Resistant phenotypes accounted for 26.2% of the identified pathogens.

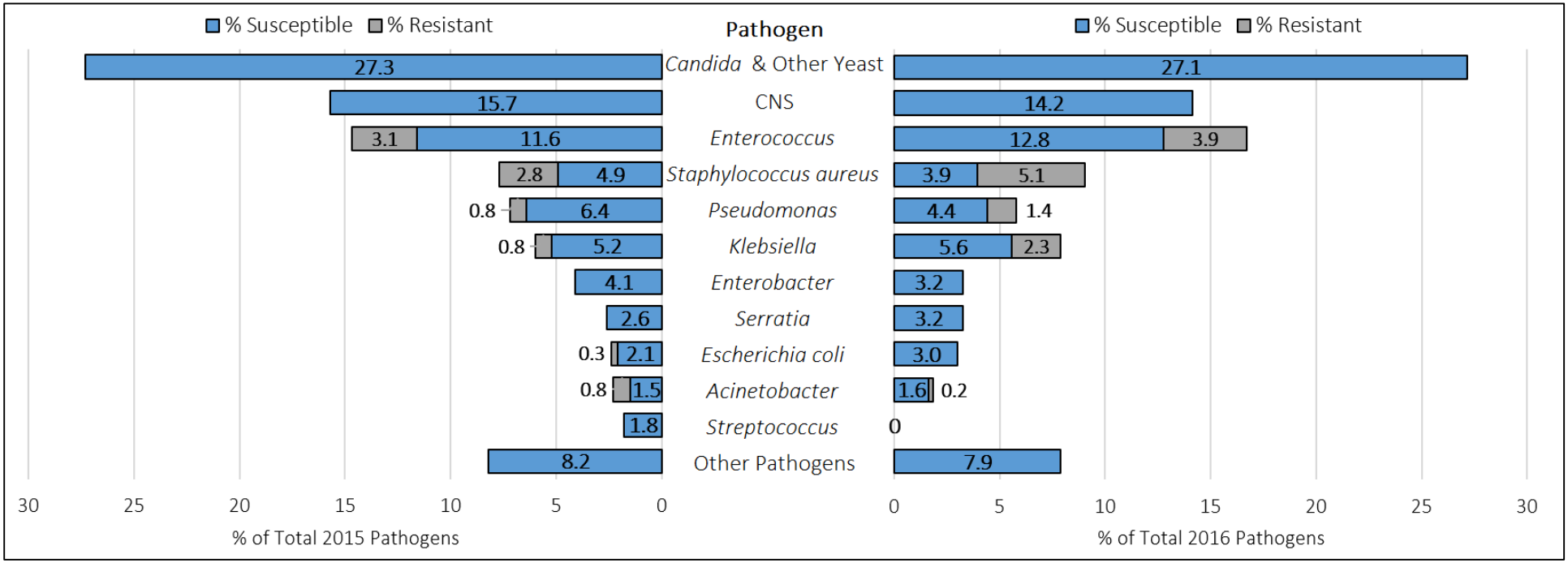
In 2016, 141 pathogens were isolated from the 130 reported CLABSI. The most commonly identified pathogens were *Enterococcus* species (26.2%), *Candida* and other yeast species (21.1%), coagulase-negative *Staphylococcus* species (11.3%), and *Klebsiella* species (11.3%) [Figure 6]. Resistant phenotypes accounted for 23.4% of the identified pathogens [Table 9].

Table 5: CLABSI SIR and SUR, by Facility Type, Location Type, and Year, Georgia 2015-2016

CDC-Designated Location Type	2015				2016			
	N	SIR & 95% CI	NNTP	SUR & 95% CI	N	SIR & 95% CI	NNTP	SUR & 95% CI
Acute Care Hospital Adult & Pediatric ICU Total	167	1.22 (1.10, 1.35) ^	209	1.08 (1.08, 1.08) ^	164	1.24 (1.12, 1.37) ^	225	1.05 (1.05, 1.06) ^
Burn ICU	2	1.48 (1.03, 2.06) ^	22	1.77 (1.73, 1.81) ^	2	3.04 (2.38, 3.83) ^	57	1.76 (1.72, 1.80) ^
Medical Cardiac ICU	14	1.32 (0.90, 1.88)	19	1.08 (1.06, 1.09) ^	14	1.16 (0.78, 1.66)	16	1.07 (1.05, 1.08) ^
Surgical Cardiothoracic ICU	17	1.28 (0.96, 1.67)	31	1.37 (1.35, 1.38) ^	17	0.91 (0.65, 1.24)	18	1.29 (1.28, 1.30) ^
Medical ICU	21	1.40 (1.01, 1.90) ^	26	0.99 (0.97, 1.00)	20	0.96 (0.64, 1.38)	13	0.92 (0.91, 0.93) ˅
Medical/Surgical ICU	87	1.07 (0.90, 1.26)	71	1.06 (1.05, 1.06) ^	84	1.12 (0.95, 1.31)	79	1.05 (1.04, 1.05) ^
Pediatric Medical/Surgical ICU	3	0.69 (0.18, 1.89)	1	1.04 (1.01, 1.08) ^	3	1.65 (0.67, 3.44)	5	0.94 (0.90, 0.97) ˅
Neurologic ICU	4	0.63 (0.26, 1.31)	2	1.09 (1.07, 1.11) ^	5	0.47 (0.17, 1.05)	0	1.05 (1.03, 1.07) ^
Neurosurgical ICU	9	1.83 (1.25, 2.60) ^	22	0.85 (0.84, 0.87) ˅	9	1.31 (0.83, 1.96)	13	0.88 (0.86, 0.89) ˅
Prenatal ICU	1	.	.	0.03 (0.02, 0.04) ˅	1	.	.	0.02 (0.02, 0.03) ˅
Surgical ICU	5	1.24 (0.71, 2.03)	9	1.12 (1.10, 1.14) ^	5	1.46 (0.92, 2.21)	14	1.13 (1.11, 1.15) ^
Trauma ICU	4	1.24 (0.79, 1.87)	13	0.96 (0.94, 0.98) ˅	4	1.37 (0.87, 2.06)	14	0.88 (0.86, 0.90) ˅
Acute Care Hospital Adult and Pediatric Ward Total	302	1.09 (0.97, 1.23)	145	1.06 (1.06, 1.07) ^	311	1.07 (0.95, 1.21)	149	1.05 (1.04, 1.05) ^
Medical Ward	97	1.25 (1.04, 1.49) ^	50	1.02 (1.01, 1.02) ^	101	0.90 (0.73, 1.10)	16	0.99 (0.98, 1.00)
Pediatric Medical Ward	3	0.00 (0.00, 2.88)	0	1.13 (1.12, 1.13) ^	3	0.00 (0.00, 2.16)	0	1.12 (1.11, 1.12) ^
Medical/Surgical Ward	137	0.99 (0.82, 1.19)	27	0.99 (0.96, 1.03)	141	1.13 (0.95, 1.34)	43	0.85 (0.82, 0.89) ˅
Pediatric Medical/Surgical Ward	14	.	1	2.16 (2.05, 2.28) ^	14	.	0	1.42 (1.33, 1.51) ^
Surgical Ward	51	0.96 (0.74, 1.23)	14	1.01 (1.00, 1.02)	52	0.87 (0.66, 1.12)	8	1.03 (1.02, 1.04) ^
Acute Care Hospital Neonatal ICU Total	35	1.36 (1.09, 1.67) ^	54	1.00 (0.99, 1.01)	36	1.12 (0.88, 1.41)	39	0.89 (0.88, 0.90) ˅
Neonatal ICU (Level II/III)	22	1.30 (0.91 ,1.81)	21	0.95 (0.94, 0.96)	21	1.20 (0.77 ,1.79)	13	0.92 (0.91, 0.93) ˅
Neonatal ICU (Level III)	13	1.39 (1.05 ,1.81) ^	34	1.07 (1.06, 1.09) ^	15	1.09 (0.81 ,1.43)	26	0.83 (0.81, 0.84) ˅
Long Term Acute Care Hospital Total	26	0.90 (0.74, 1.08)	48	1.20 (1.19, 1.20) ^	26	1.20 (1.01, 1.42) ^	76	1.10 (1.09, 1.10) ^
Long-Term Acute Care ICU	2	0.14 (0.01, 0.68) ˅	0	1.58 (1.52, 1.64) ^	2	0.27 (0.01, 1.31)	0	1.46 (1.40, 1.53) ^
Long-Term Acute Care Ward	24	0.95 (0.78, 1.14)	51	1.19 (1.18, 1.19) ^	24	1.23 (1.04, 1.46) ^	77	1.09 (1.08, 1.10) ^

^ Indicates an SIR value that is significantly higher than the national baseline; ˅ Indicates an SIR value that is significantly lower than the national baseline; . Indicates no SIR, 95% CI, or NNTP could be calculated

Figure 3: Distribution of Pathogens Identified from CLABSI in Adult and Pediatric ICU, Georgia 2015-2016

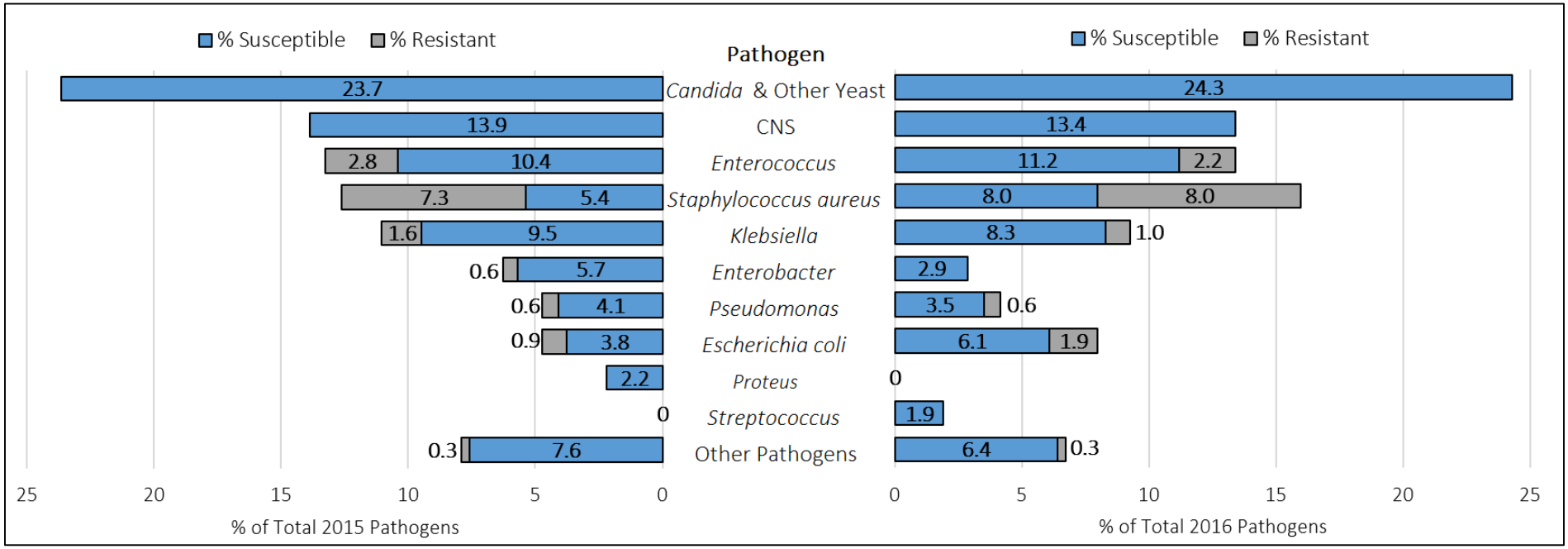


CNS: Coagulase-negative *Staphylococcus.* Other pathogens: 5 or fewer of the following: *Achromobacter Anaerococcus*, *Arthrobacter*, *Bacillus*, *Bacterioides*, *Bifidobacterium, Brevibacterium*, *Budvicia, Burkholderia, Citrobacter, Clostridium*, *Dialister*, *Eggerthella*, *Fusiformis*, *Fusobacterium*, *Lactobacillus*, *Morganella*, other *Staphylococcus* species, *Pantoea*, *Peptococcus*, *Peptostreptococcus*, *Proteus* and *Streptococcus;* as well as pathogens identified as anaerobe, Boas-Oppler bacilli, CDC group, Gram-negative bacillus, and Gram-positive coccus.

Table 6: Resistant Pathogen Phenotypes Identified from CLABSI in Adult and Pediatric ICU, Georgia 2015 and 2016

Resistant Phenotype	2015		2016	
	N	% of Total Pathogens	N	% of Total Pathogens
MRSA	11	2.8	22	5.1
VRE *Enterococcus faecium*	10	2.6	15	3.5
MDR *Acinetobacter*	3	0.8	1	0.2
MDR *Pseudomonas aeruginosa*	3	0.8	6	1.4
VRE *Enterococcus faecalis*	2	0.5	2	0.5
ESC *Klebsiella spp.*	2	0.5	9	2.1
ESC *Escherichia coli*	1	0.3	0	0
CRE *Klebsiella spp.*	1	0.3	1	0.2
Total	33	8.5	56	13.0

Figure 4: Distribution of Pathogens Identified from CLABSI in Adult and Pediatric Wards, Georgia 2015-2016

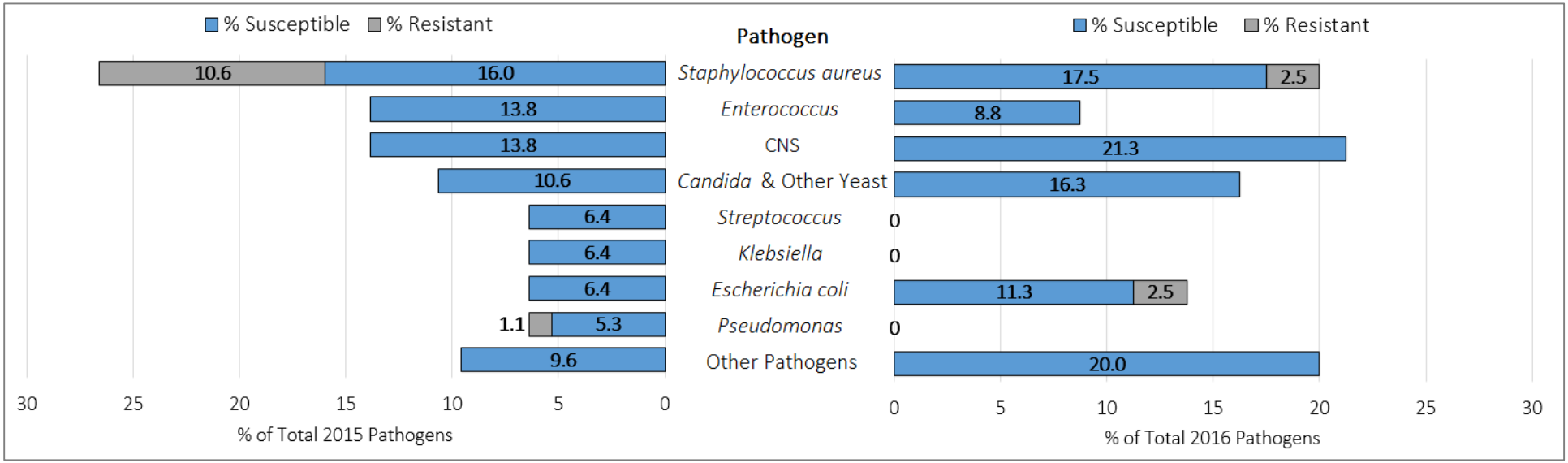


CNS: Coagulase-negative *Staphylococcus.* Other pathogens: 5 or fewer of the following: *Achromobacter, Acinetobacter, Agrobacterium, Arthrobacter, Bacillus, Bacterioides, Branhamella, Burkholderia, Citrobacter, Corynebacterium, Fusobacterium, Kocuria, Lactobacillus, Leuconostoc, Micrococcus*, *Morganella*, other *Staphylococcus* species*, Serratia,* and *Streptococcus;* as well as pathogens identified as CDC group, Gram-negative bacillus, and Gram-positive bacillus.

Table 7: Resistant Pathogen Phenotypes Identified from CLABSI in Adult and Pediatric Wards, Georgia 2015-2016

Resistant Phenotype	2015		2016	
	N	% of Total Pathogens	N	% of Total Pathogens
MRSA	23	7.3	25	8.0
VRE *Enterococcus faecium*	8	2.5	6	1.9
ESC *Klebsiella spp*	4	1.3	3	1.0
ESC *Escherichia coli*	3	0.9	6	1.9
CRE *Enterobacter spp*	2	0.6	0	0
MDR *Pseudomonas aeruginosa*	2	0.6	2	0.6
VRE *Enterococcus faecalis*	1	0.3	1	0.3
CRE *Klebsiella spp*	1	0.3	0	0
MDR *Acinetobacter spp*	1	0.3	1	0.3
Total	45	14.1	44	14.1

Figure 5: Distribution of Pathogens Identified from CLABSI in NICU, Georgia 2015-2016

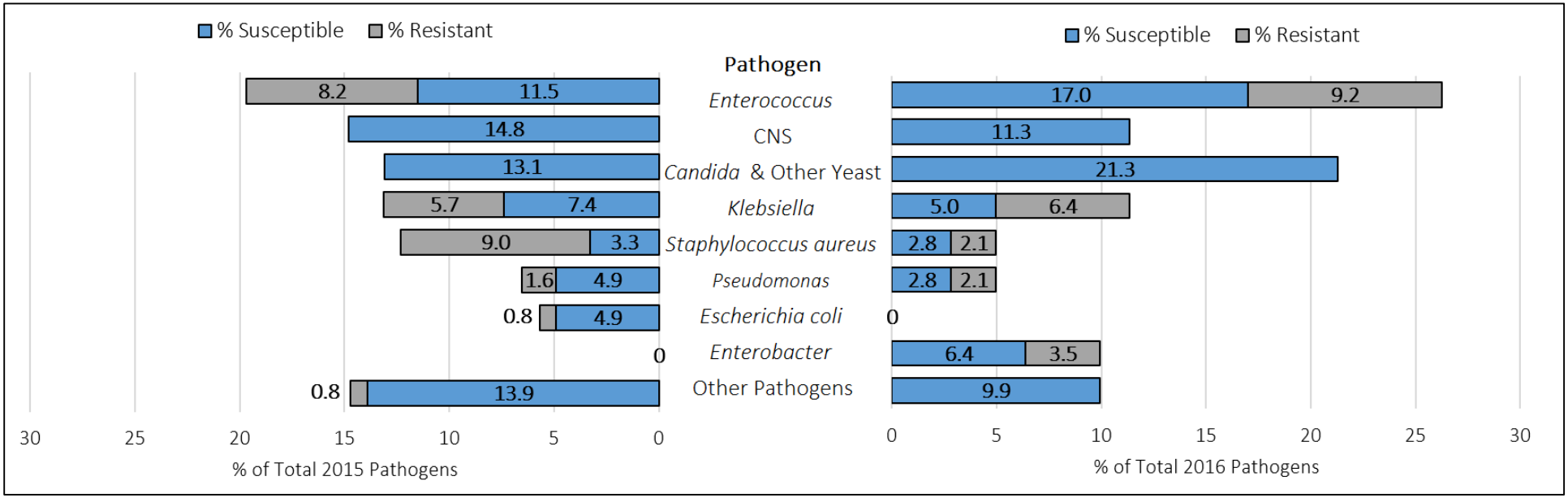


CNS: Coagulase-negative *Staphylococcus.* Other pathogens: 5 or fewer of the following: *Acinetobacter*, *Enterobacter*, *Klebsiella*, *Proteus*, *Pseudomonas*, other *Staphylococcus* species, *Serratia,* and *Streptococcus*; as well as pathogens identified as Gram-negative bacillus and Gram-positive coccus.

Table 8: Resistant Pathogen Phenotypes Identified from CLABSI in NICU, Georgia 2015-2016

Resistant Phenotype	2015		2016	
	N	% of Total Pathogens	N	% of Total Pathogens
MRSA	10	10.6	2	2.5
CarbNS *Pseudomonas aeruginosa*	1	1.1	0	0
CRE *Escherichia coli*	0	0	1	1.3
ESC *Escherichia coli*	0	0	1	1.3
Total	11	11.7	4	5.0

Figure 6: Distribution of Pathogens Identified from CLABSI in LTACH, Georgia 2015-2016



CNS: Coagulase-negative *Staphylococcus.* Other pathogens: 5 or fewer of the following: *Acinetobacter*, *Bacterioides*, *Citrobacter*, *Enterobacter*, *Escherichia coli, Lactobacillus*, other *Staphylococcus* species, *Proteus*, *Serratia*, and *Streptococcus;* as well as pathogens identified as: CDC group and Gram-negative bacillus.

Table 9: Resistant Pathogen Phenotypes Identified from CLABSI in LTACH, Georgia 2015-2016

Resistant Phenotype	2015		2016	
	N	% of Total Pathogens	N	% of Total Pathogens
MRSA	11	9.0	3	2.1
VRE *Enterococcus faecium*	8	6.6	9	6.4
ESC *Klebsiella spp*	6	4.9	3	2.1
MDR *Pseudomonas aeruginosa*	2	1.6	3	2.1
VRE *Enterococcus faecalis*	2	1.6	4	2.8
ESC *Escherichia coli*	1	0.8	0	0
CRE *Klebsiella spp*	1	0.8	6	4.3
MDR *Acinetobacter spp*	1	0.8	0	0
CRE *Enterobacter spp*	0	0	5	3.5
Total	32	26.2	33	23.4

Catheter-Associated Urinary Tract Infections

Overview

An indwelling urinary catheter is a tube that is inserted into the bladder through the urethra and is connected to a drainage bag. When bacteria enter the bladder or kidneys through the urinary catheter, urinary tract infections can occur.

Urinary tract infections meet the NHSN definition of a catheter-associated urinary tract infection (CAUTI) when the catheter is in place for at least 2 calendar days on the day the infection is recognized and is either still in place or was removed the day prior.

Overall CAUTI Key Findings

CAUTI SIR from the first quarter of 2015 to the fourth quarter of 2016:

- In ACH, adult and pediatric ICU decreased from 1.21 to 0.84
- In ACH, adult and pediatric wards decreased from 0.96 to 0.81 [Figure 7]
- IRF increased from 0 to 0.73. No SIR could be calculated for the fourth quarter of 2016 because there was less than 1 infection predicted.
- LTACH increased from 1.24 to 1.55 [Figure 8]

Figure 7: CAUTI SIR in ACH, by Location Type and Quarter, Georgia 2015-2016

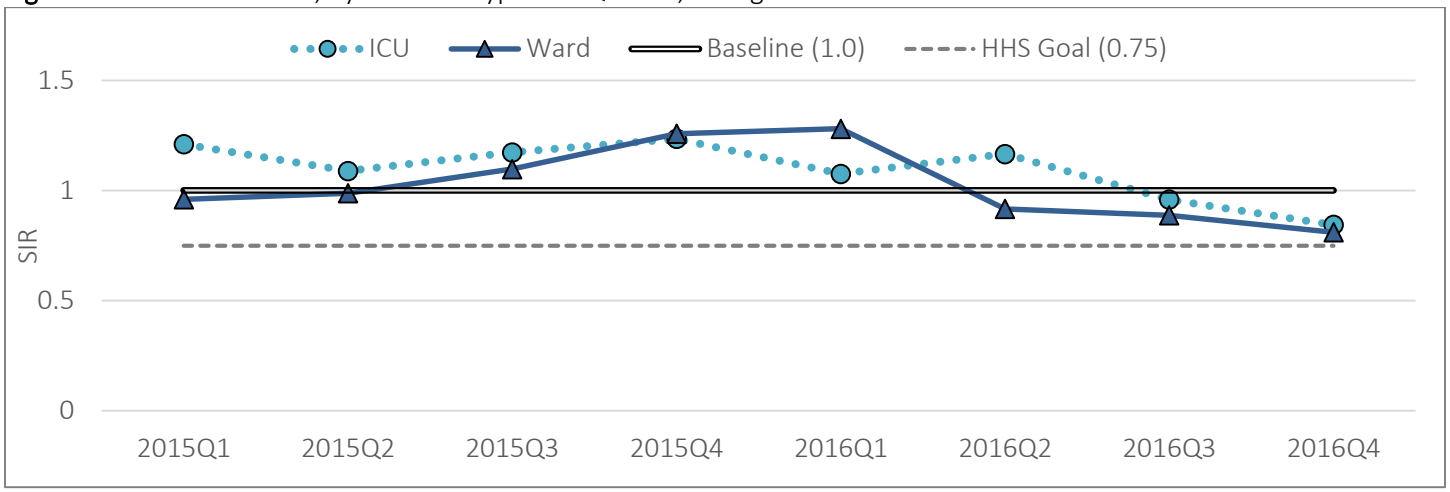
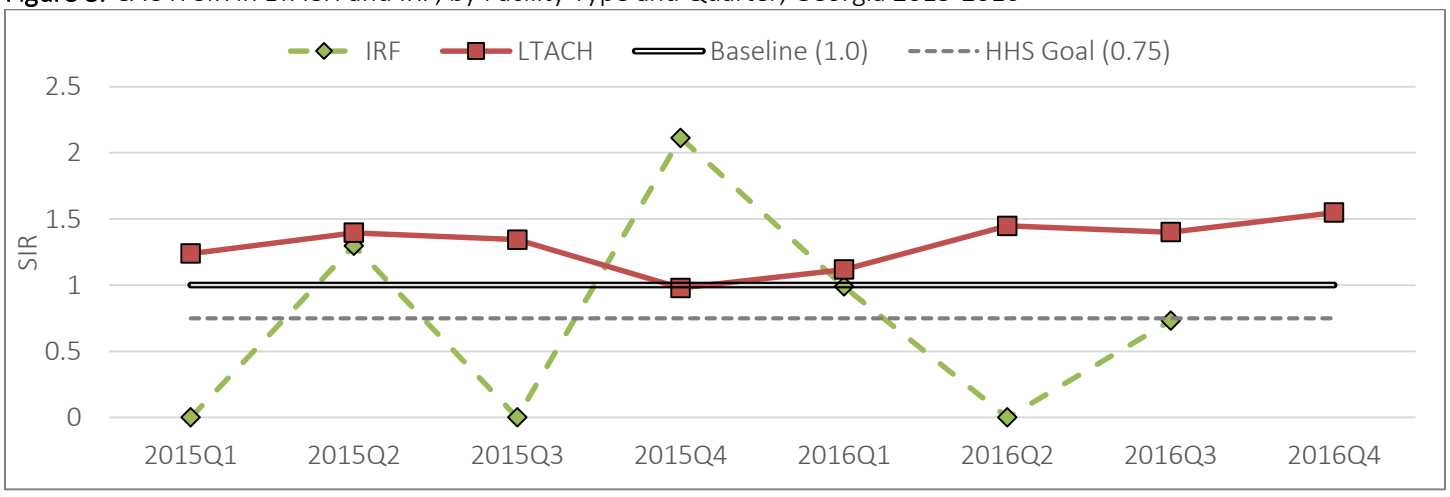


Figure 8: CAUTI SIR in LTACH and IRF, by Facility Type and Quarter, Georgia 2015-2016



CAUTI in Adult and Pediatric Intensive Care Units in Acute Care Hospitals

Characteristics of Reporting Units

In 2015, 89 ACH reported CAUTI from 167 adult and pediatric intensive care units (ICU); in 2016, 88 ACH reported from 164 ICU.

SIR by Quarter

The SIR decreased from 1.21 in the first quarter of 2015 to 0.84 in the fourth quarter of 2016 [Figure 7].

SIR and NNTP by Year

The 2015 SIR was 1.18 (95% CI 1.08, 1.21), meaning there were 18% more CAUTI than predicted. The 2015 SIR was significantly higher than the national baseline and a reduction of 194 CAUTI was needed to reach the HHS SIR goal of 0.75.

The 2016 SIR for was 1.01 (95% CI 0.93, 1.11), meaning there was 1% more CAUTI than predicted. The 2016 SIR was not significantly different from the national baseline and a reduction of 124 CAUTI was needed to reach the HHS SIR goal of 0.75 [Table 10]. There was no significant difference between the 2015 and 2016 SIR.

SIR by CDC-Designated Location Type

In 2015, compared to the national baseline, the SIR was significantly higher in medical/surgical and neurosurgical ICU and not significantly different in other reporting ICU.

In 2016, compared to the national baseline, SIR was significantly higher in medical/surgical ICU and not significantly different in other reporting ICU [Table 10].

Standardized Utilization Ratio

In 2015, compared to the national baseline, the SUR was significantly higher in seven reporting ICU (burn, surgical cardiothoracic, neurologic, neurosurgical, prenatal, surgical, and trauma ICU). The 2015 SUR was not significantly different in pediatric medical/surgical ICU and significantly lower in other reporting ICU.

In 2016, compared to the national baseline, the SUR remained significantly higher in six reporting ICU (burn, neurologic, neurosurgical, prenatal, surgical, and trauma ICU). The 2016 SUR was not significantly different in surgical cardiothoracic ICU and significantly lower in other reporting ICU [Table 10].

Pathogens Identified

In 2015, 579 pathogens were isolated from the 532 reported CAUTI. The most commonly identified pathogens were *Escherichia coli* (35.8%), *Pseudomonas* species (15.9%), and *Klebsiella* species (13.6%). Resistant phenotypes accounted for 9.7% of the identified pathogens.

In 2016, 515 pathogens were isolated from the 474 reported CAUTI. The most commonly identified pathogens were *Escherichia coli* (32.5%), *Enterococcus* species (17.1%), and *Klebsiella* species (14.8%) [Figure 9]. Resistant phenotypes accounted for 14% of the identified pathogens [Table 11].

CAUTI in Adult and Pediatric Wards in Acute Care Hospitals

Characteristics of Reporting Units

In 2015, 97 ACH reported CAUTI from 302 adult and pediatric wards; in 2016, 97 ACH reported from 311 wards.

SIR by Quarter

The SIR decreased from 0.96 in the first quarter of 2015 to 0.81 in the fourth quarter of 2016 [Figure 7].

SIR and NNTP by Year

The 2015 SIR was 1.07 (95% CI 0.97, 1.20), meaning there were 7% more CAUTI than predicted. The 2015 SIR was not significantly different from the national baseline and a reduction of 89 CAUTI was needed to reach the HHS SIR goal of 0.75.

The 2016 SIR was 0.98 (95% CI 0.87, 1.10), meaning there were 2% fewer CAUTI than predicted. The 2016 SIR was not significantly different from the national baseline and a reduction of 64 CAUTI was needed to reach the HHS SIR goal of 0.75 [Table 10]. There was no significant different between the 2015 and 2016 SIR.

SIR by CDC-Designated Location Type

In 2015, compared to the national baseline, the SIR was significantly higher in medical wards and not significantly different in other reporting wards. An SIR could not be calculated for pediatric medical/surgical wards.

In 2016, compared to the national baseline, the SIR was not significantly different in reporting wards. An SIR could not be calculated for pediatric medical/surgical wards [Table 10].

Standardized Utilization Ratio

In 2015, compared to the national baseline, the SUR was significantly higher in medical, pediatric medical, and medical/surgical wards and significantly lower in other reporting wards.

In 2016, compared to the national baseline, the SUR was significantly higher in pediatric medical/surgical wards, not significantly different in pediatric medical wards, and significantly lower in other reporting wards [Table 10].

Pathogens Identified

In 2015, 327 pathogens were isolated from the 295 reported CAUTI. The most commonly identified pathogens were *Escherichia coli* (32.7%), *Enterococcus* species (16.2%), and *Pseudomonas* species (13.8%). Resistant phenotypes accounted for 15.0% of the identified pathogens.

In 2016, 297 pathogens were isolated from the 272 reported CAUTI. The most commonly identified pathogens were *Escherichia coli* (29.6%), *Klebsiella* species (13.5%), and *Pseudomonas* species (13.5%) [Figure 10]. Resistant phenotypes accounted for 13.8% of the identified pathogens [Table 12].

CAUTI in Freestanding Inpatient Rehabilitation Facilities (IRF)

Characteristics of Reporting Units

In 2015 and 2016, 5 IRF reported CAUTI.

SIR by Quarter

The SIR increased from 0 in the first quarter of 2015 to 0.73 in the third quarter of 2016. An SIR could not be calculated for the fourth quarter of 2016 because there was less than one predicted infection [Figure 8].

SIR and NNTP by Year

The 2015 SIR was 0.91 (95% CI 0.34, 2.03), meaning there were 9% fewer CAUTI than predicted. The 2015 SIR was not significantly different from the national baseline and a reduction of 1 infection was needed to reach the HHS SIR goal of 0.75.

The 2016 SIR was 0.66 (95% CI 0.17, 1.79), meaning there were 34% fewer CAUTI than predicted. The 2016 SIR was not significantly different from the national baseline. The HHS SIR goal of 0.75 was reached [Table 10]. There was no significant difference between the 2015 and 2016 SIR.

Standardized Utilization Ratio

In both 2015 and 2016, compared to the national baseline, the SUR was significantly lower [Table 10].

Pathogens Identified

In 2015, 5 pathogens were isolated from the 5 reported CAUTI and included *Escherichia coli, Klebsiella* species, and *Enterococcus* species. No resistant organisms were identified.

In 2016, 3 pathogens were isolated from the 3 reported CAUTI and included *Escherichia coli* and *Enterococcus* species. No resistant organisms were identified.

CAUTI in Long-Term Acute Care Hospitals

Characteristics of Reporting Units

In 2015 and 2016, 16 LTACH reported CLABSI from 26 long-term acute care units.

SIR by Quarter

The SIR increased from 1.24 in the first quarter of 2015 to 1.55 in the fourth quarter of 2016 [Figure 8].

SIR and NNTP by Year

The 2015 SIR was 1.24 (95% CI 1.08, 1.42), meaning there were 24% more CAUTI than predicted. The 2015 SIR was significantly higher than the national baseline and a reduction of 79 CAUTI was needed to reach the HHS SIR goal of 0.75.

The 2016 SIR was 1.37 (95% CI 1.19, 1.57), meaning there were 37% more CAUTI than predicted. The 2016 SIR was significantly higher than the national baseline and a reduction of 90 CAUTI was needed to reach the HHS SIR goal of 0.75 [Table 10]. There was no significant difference between the 2015 and 2016 SIR.

SIR by CDC-Designated Location Type

In 2015, compared to the national baseline, the SIR was significantly lower in long-term acute care ICU and not significantly different in long-term acute care wards.

In 2016, compared to the national baseline, the SIR was significantly higher in long-term acute care wards and not significantly different in long-term acute care ICU [Table 10].

Standardized Utilization Ratio

In both 2015 and 2016, compared to the national baseline, the SUR was significantly higher in both long-term acute care ICU and wards [Table 10].

Pathogens Identified

In 2015, 216 pathogens were isolated from the 200 reported CAUTI. The most commonly identified pathogens were *Pseudomonas* species (30.1%), *Escherichia coli* (19.0%), and *Klebsiella* species (17.1%). Resistant phenotypes accounted for 28.2% of the identified pathogens.

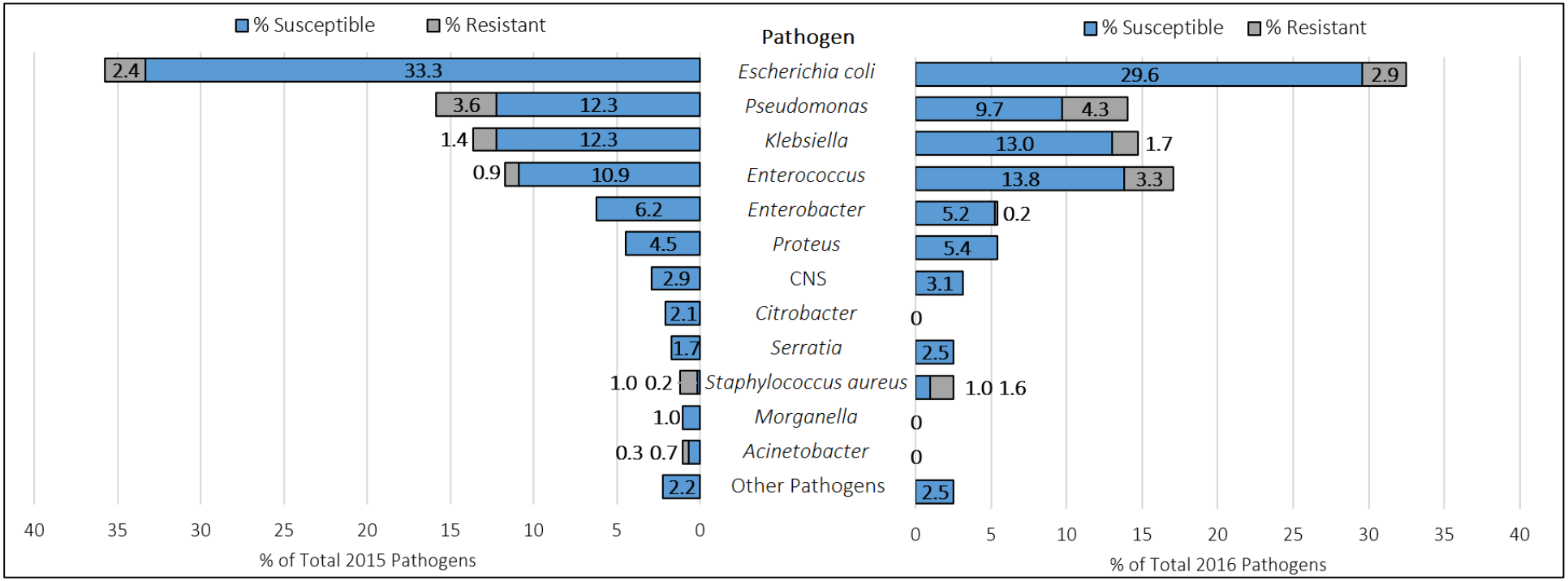
In 2016, 221 pathogens were isolated from the 199 reported CAUTI. The most commonly identified pathogens were *Escherichia coli* (24.9%), *Pseudomonas* species (23.1%), and *Klebsiella* species (20.4%) [Figure 11]. Resistant phenotypes accounted for 24.9% of the identified pathogens [Table 13].

Table 10: CAUTI SIR, by Facility Type, Location Type, and Year, Georgia 2015-2016

CDC-Designated Location Type	2015				2016			
	N	SIR & 95% CI	NNTP	SUR & 95% CI	N	SIR & 95% CI	NNTP	SUR & 95% CI
Acute Care Hospital Adult & Pediatric ICU Total	167	1.18 (1.08, 1.28) ^	194	1.03 (1.03, 1.04) ^	164	1.01 (0.93, 1.11)	124	1.02 (1.02, 1.02) ^
Burn ICU	2	0.76 (0.43, 1.25)	1	1.65 (1.61, 1.68) ^	14	1.22 (0.78, 1.82)	9	1.56 (1.52, 1.59) ^
Medical Cardiac ICU	14	1.38 (0.96, 1.91)	16	0.95 (0.93, 0.96) ˅	17	0.75 (0.47, 1.14)	1	0.96 (0.95, 0.97) ˅
Surgical Cardiothoracic ICU	17	1.13 (0.83, 1.51)	15	1.05 (1.04, 1.07) ^	20	0.71 (0.49, 1.01)	0	1.01 (1.00, 1.02)
Medical ICU	21	1.17 (0.85, 1.57)	15	0.95 (0.94, 0.96) ˅	3	0.93 (0.66, 1.29)	7	0.91 (0.90, 0.92) ˅
Medical/Surgical ICU	87	1.29 (1.12, 1.47) ^	86	0.99 (0.99, 1.00)	84	1.25 (1.09, 1.43) ^	84	0.99 (0.99, 1.00)
Pediatric Medical/Surgical ICU	3	0.44 (0.02, 2.16)	0	0.99 (0.93, 1.04)	5	2.60 (0.95, 5.76)	4	0.89 (0.84, 0.94) ˅
Neurologic ICU	4	0.99 (0.71, 1.35)	9	1.23 (1.21, 1.26) ^	9	1.00 (0.71, 1.36)	10	1.07 (1.05, 1.09) ^
Neurosurgical ICU	9	1.28 (1.03, 1.57) ^	36	1.05 (1.03, 1.06) ^	2	0.94 (0.73, 1.20)	13	1.07 (1.05, 1.08) ^
Prenatal ICU	1	0.77 (0.04, 3.81)	1	1.38 (1.29, 1.47) ^	1	0.00 (0.00, 1.98)	0	1.56 (1.47, 1.65) ^
Surgical ICU	5	1.19 (0.79, 1.74)	10	1.16 (1.14, 1.18) ^	5	0.76 (0.47, 1.15)	1	1.23 (1.21, 1.24) ^
Trauma ICU	4	0.97 (0.72, 1.28)	11	1.41 (1.39, 1.44) ^	4	0.79 (0.56, 1.09)	2	1.34 (1.31, 1.36) ^
Acute Care Hospital Adult and Pediatric Ward Total	302	1.07 (0.96, 1.20)	89	1.01 (1.01, 1.02) ^	311	0.98 (0.87, 1.10)	64	0.96 (0.96, 0.97) ˅
Medical Ward	97	1.25 (1.04, 1.49) ^	50	1.05 (1.04, 1.06) ^	101	0.90 (0.73, 1.10)	16	0.98 (0.97, 0.99) ˅
Pediatric Medical Ward	3	0.00 (0.00, 2.88)	0	1.03 (1.03, 1.04) ^	3	0.00 (0.00, 2.16)	0	0.99 (0.99, 1.00)
Medical/Surgical Ward	137	0.99 (0.82, 1.19)	27	0.92 (0.86, 0.98) ˅	141	1.13 (0.95, 1.34)	43	0.81 (0.76, 0.87) ˅
Pediatric Medical/Surgical Ward	14	.	.	6.85 (6.56, 7.14) ^	14	.	.	7.20 (6.91, 7.50) ^
Surgical Ward	51	0.96 (0.74, 1.23)	50	0.91 (0.90, 0.91) ˅	52	0.87 (0.66, 1.12)	8	0.87 (0.87, 0.88) ˅
Inpatient Rehabilitation Hospital Total	5	0.91 (0.34, 2.03)	1	0.83 (0.80, 0.86) ˅	5	0.66 (0.17, 1.79)	0	0.72 (0.69, 0.74) ˅
Long Term Acute Care Hospital Total	26	1.24 (1.08, 1.42) ^	79	1.20 (1.20, 1.21) ^	26	1.37 (1.19, 1.57) ^	90	1.16 (1.15, 1.17) ^
Long-Term Acute Care ICU	2	0.87 (0.01, 0.68) ˅	2	1.58 (1.52, 1.64) ^	2	0.77 (0.01, 1.31)	1	1.46 (1.40, 1.53) ^
Long-Term Acute Care Ward	24	1.26 (0.78, 1.14)	78	1.19 (1.18, 1.19) ^	24	1.40 (1.04, 1.46) ^	90	1.09 (1.08, 1.10) ^

^ Indicates an SIR value that is significantly higher than the national baseline; ˅ Indicates an SIR value that is significantly lower than the national baseline; . Indicates no SIR, 95% CI, or NNTP could be calculated

Figure 9: Distribution of Pathogens Identified from CAUTI in Adult and Pediatric ICU, Georgia 2015-2016

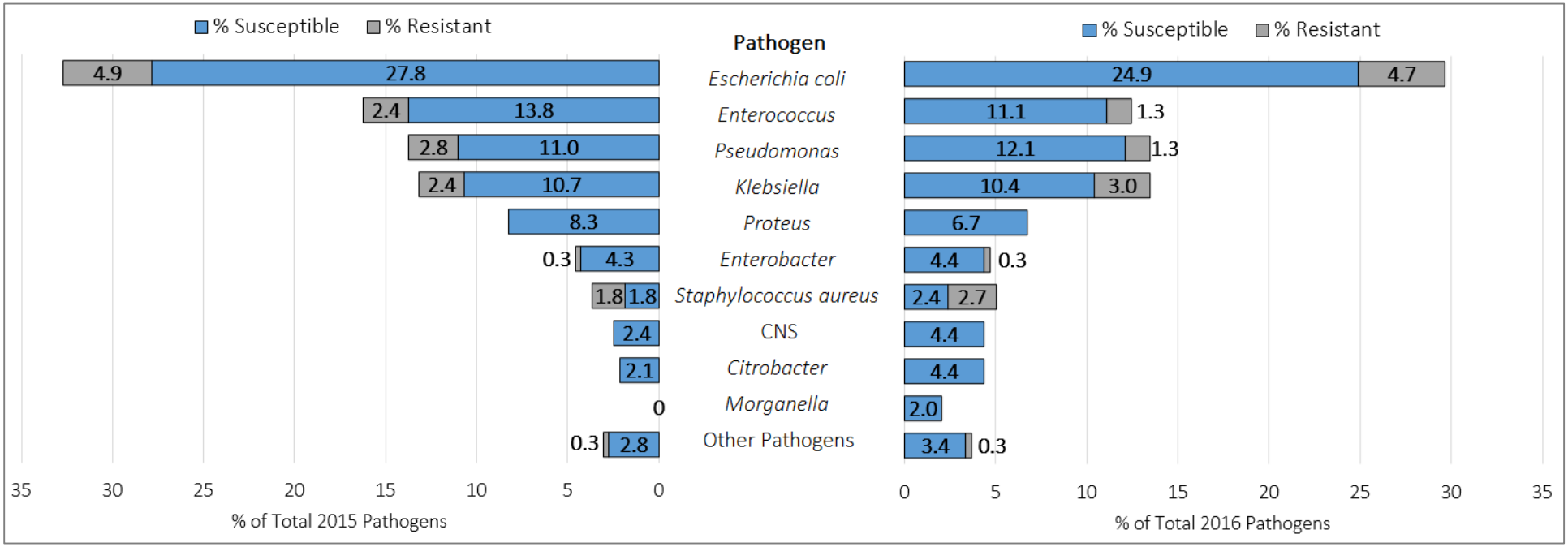


CNS: Coagulase-negative *Staphylococcus.* Other pathogens: 5 or fewer of the following: *Achromobacter*, *Acinetobacter*, *Arthrobacter*, *Bacillus, Burkholderia, Candida and other yeast*, *Citrobacter, Corynebacterium, Micrococcus*, *Morganella*, other *Staphylococcus* species, and *Streptococcus*; as well as pathogens identified as CDC group.

Table 11: Resistant Pathogen Phenotypes Identified from CAUTI in Adult and Pediatric ICU, Georgia 2015-2016

Resistant Phenotype	2015		2016	
	N	% of Total Pathogens	N	% of Total Pathogens
MDR *Pseudomonas aeruginosa*	20	3.5	17	3.3
ESC *Escherichia coli*	14	2.4	14	2.7
MRSA	6	1.0	8	1.6
ESC *Klebsiella spp*	5	0.9	7	1.4
VRE *Enterococcus faecium*	5	0.9	17	3.3
CRE *Klebsiella spp*	3	0.5	2	0.4
MDR *Acinetobacter spp*	2	0.3	0	0
CarbNS *Pseudomonas aeruginosa*	1	0.2	5	1.0
CRE *Escherichia coli*	0	0	1	0.2
CRE *Enterobacter spp*	0	0	1	0.2
Total	56	9.7	72	14.0

Figure 10: Distribution of Pathogens Identified from CAUTI in Adult and Pediatric Wards, Georgia 2015-2016

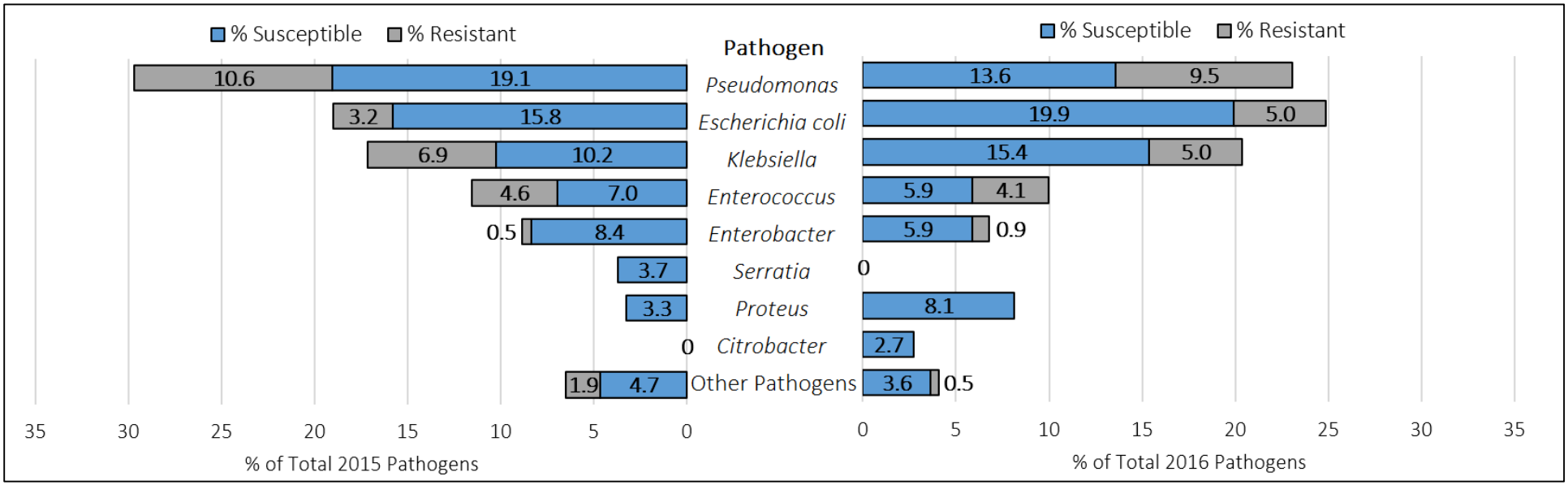


CNS: Coagulase-negative *Staphylococcus.* Other pathogens: 5 or fewer of the following: *Achromobacter, Acinetobacter, Aerococcus, Corynebacterium, Delftia, Morganella, Lactobacillus*, *Serratia,* and *Streptococcus*; as well as pathogens identified as Gram-negative bacillus and CDC group.

Table 12: Resistant Pathogen Phenotypes Identified from CAUTI in Adult and Pediatric Wards, Georgia 2015-2016

Resistant Phenotype	2015		2016	
	N	% of Total Pathogens	N	% of Total Pathogens
ESC *Escherichia coli*	15	4.6	14	4.7
MDR *Pseudomonas aeruginosa*	9	2.8	4	1.3
ESC *Klebsiella spp*	8	2.4	7	2.4
VRE *Enterococcus faecium*	8	2.4	4	1.3
MRSA	6	1.8	8	2.7
MDR *Acinetobacter spp*	1	0.3	1	0.3
CRE *Enterobacter spp*	1	0.3	1	0.3
CRE *Escherichia coli*	1	0.3	0	0
CRE *Klebsiella spp*	0	0	2	0.7
Total	49	15.0	41	13.8

Figure 11: Distribution of Pathogens Identified from CAUTI in LTACH, Georgia 2015-2016



CNS: Coagulase-negative *Staphylococcus.* Other pathogens: 5 or fewer of the following: *Achromobacter, Acinetobacter, Citrobacter, Serratia*, coagulase-negative *Staphylococcus, Staphylococcus aureus,* and *Streptococcus*, as well as pathogens identified as CDC group and Gram-positive bacillus.

Table 13: Resistant Pathogen Phenotypes Identified from CAUTI in LTACH, Georgia 2015-2016

Resistant Phenotype	2015		2016	
	N	% of Total Pathogens	N	% of Total Pathogens
MDR *Pseudomonas aeruginosa*	21	9.7	15	6.8
ESC *Klebsiella spp*	12	5.6	8	3.6
VRE *Enterococcus faecium*	10	4.6	9	4.1
ESC *Escherichia coli*	7	3.2	10	4.5
CRE *Klebsiella spp*	3	1.4	3	1.4
CarbNS *Pseudomonas aeruginosa*	2	0.9	6	2.7
MRSA	2	0.9	0	0
CRE *Enterobacter spp*	1	0.5	2	0.9
MDR *Acinetobacter spp*	1	0.5	1	0.5
CarbNS *Acinetobacter spp*	1	0.5	0	0
CRE *Escherichia coli*	0	0	1	0.5
Total	60	27.4	55	24.9

Surgical Site Infections

Overview

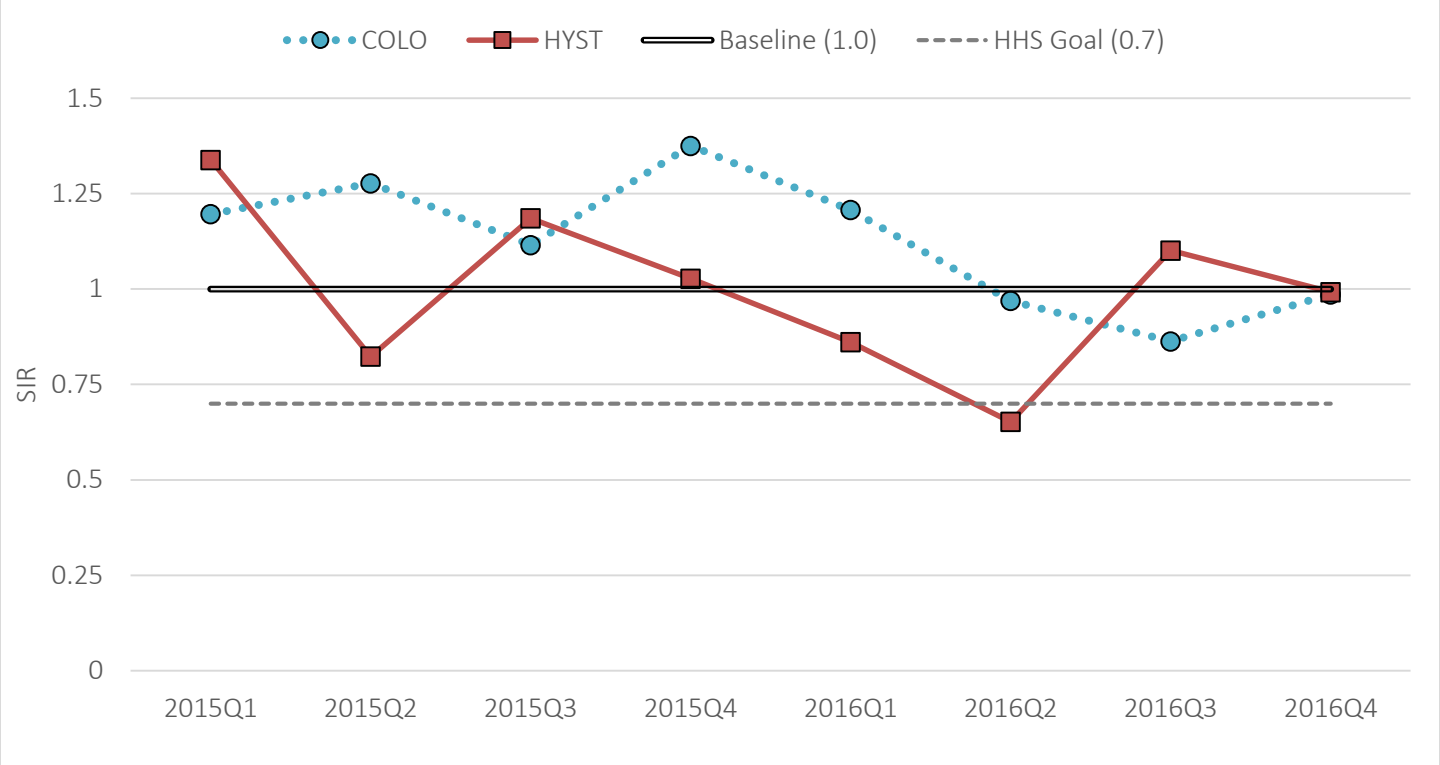
A surgical site infection is one that occurs after surgery and involves the skin, soft tissue, or other parts of the body that were incised, opened, or manipulated during the surgical procedure.

Overall SSI Key Findings

SSI SIR from the first quarter of 2015 to the fourth quarter of 2016:

- COLO decreased from 1.20 to 0.99
- HYST decreased from 1.34 to 0.99 [Figure 12]

Figure 12: SSI SIR, by Procedure Type and Quarter, Georgia 2015-2016



SSI following Colon Surgeries in Acute Care Hospitals

Characteristics of Reporting Units

In 2015, 88 ACH reported SSI COLO; in 2016, 87 ACH reported.

SIR by Quarter

The SIR decreased from 1.20 in the first quarter of 2015 to 0.99 in the fourth quarter of 2016 [Figure 12].

SIR and NNTP by Year

The 2015 SIR was 1.24 (95% CI 1.11, 1.39), meaning there were 24% more COLO SSI than predicted. The 2015 SIR was significantly higher than the national baseline and a reduction of 131 COLO SSI was needed to reach the HHS SIR goal of 0.70.

The 2016 SIR was 1.01 (95% CI 0.89, 1.14), meaning there was 1% more COLO SSI than predicted. The 2016 SIR was not significantly different from the national baseline and a reduction of 80 COLO SSI was needed to reach the HHS SIR goal of 0.70 [Table 14]. There was a significant decrease between the 2015 and 2016 SIR.

Pathogens Identified

In 2015, 694 pathogens were isolated from the 300 reported SSI. The most commonly identified pathogens were *Escherichia coli* (20.5%), *Enterococcus* species (18.6%), and *Klebsiella* species (8.9%). Resistant phenotypes accounted for 9.8% of the identified pathogens.

In 2016, 700 pathogens were isolated from the 260 reported SSI. The most commonly identified pathogens were *Escherichia coli* (23.0%), *Enterococcus* species (16.6%), and *Bacterioides* species (8%) [Figure 13]. Resistant phenotypes accounted for 10.7% of the identified pathogens [Table 15].

SSI following Abdominal Hysterectomies in Acute Care Hospitals

Characteristics of Reporting Units

In 2015, 86 ACH reported SSI HYST; in 2016, 82 ACH reported.

SIR by Quarter

The SIR decreased from 1.34 in the first quarter of 2015 to 0.99 in the fourth quarter of 2016 [Figure 12].

SIR and NNTP by Year

The 2015 SIR was 1.09 (95% CI 0.87, 1.33), meaning there were 9% more HYST SSI than predicted. The 2015 SIR was not significantly different from the national baseline and a reduction of 31 HYST SSI was needed to reach the HHS SIR goal of 0.70.

The 2016 SIR was 0.90 (95% CI 0.71, 1.13), meaning there were 10% fewer HYST SSI than predicted. The 2016 SIR was not significantly different from the national baseline and a reduction of 17 HYST SSI was needed to reach the HHS SIR goal of 0.70 [Table 14]. There was a significant decrease between the 2015 and 2016 SIR.

Pathogens Identified

In 2015, 161 pathogens were isolated from the 86 reported SSI. The most commonly identified pathogens were *Staphylococcus aureus* (13.7%), *Enterococcus* species (12.4%), and *Bacterioides* species (11.8%). Resistant phenotypes accounted for 6.2% of the identified pathogens.

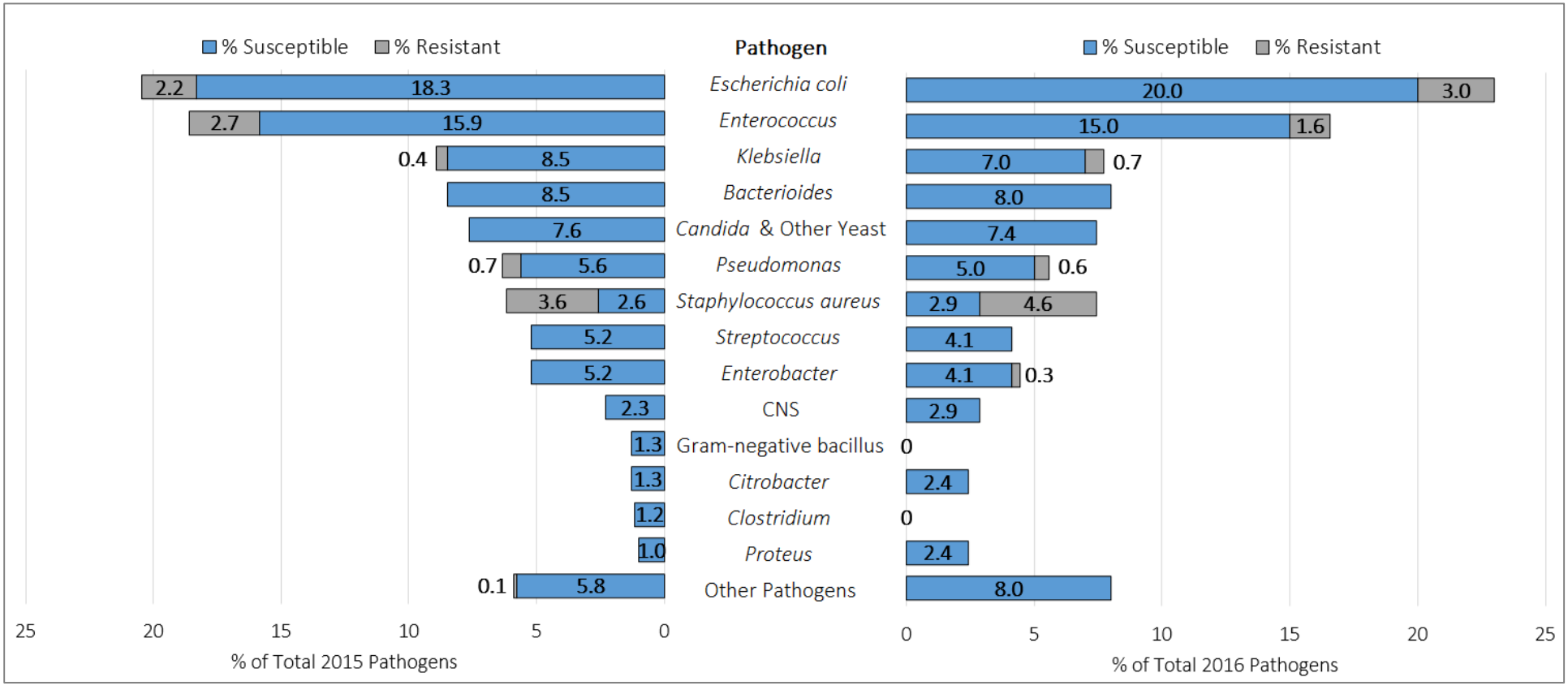
In 2016, 210 pathogens were isolated from the 72 reported SSI [Figure 14]. The most commonly identified pathogens were *Staphylococcus aureus* (15.7%), *Escherichia coli* (15.7%), and *Enterococcus* species (13.3%) [Table 16]. Resistant phenotypes accounted for 6.7% of the identified pathogens [Table 16].

Table 14: SSI SIR, by Procedure Type and Year, Georgia 2015-2016

CDC-Designated Location Type	2015			2016		
	N	SIR & 95% CI	NNTP	N	SIR & 95% CI	NNTP
SSI COLO	89	1.24 (1.11, 1.39) ^	131	87	1.01 (0.89, 1.14)	80
SSI HYST	86	1.09 (0.87, 1.33)	31	82	0.90 (0.71, 1.13)	17

^ Indicates an SIR value that is significantly higher than the national baseline

Figure 13: Distribution of Pathogens Identified from SSI COLO, Georgia 2015-2016

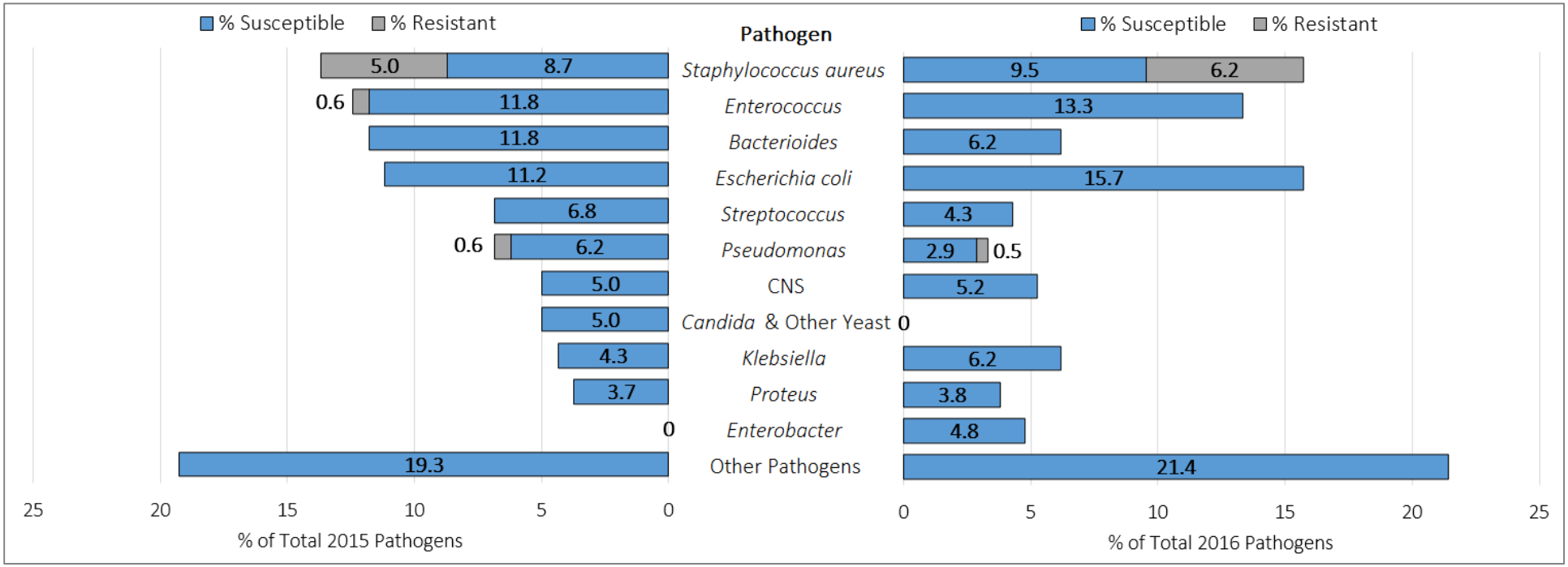


CNS: Coagulase-negative *Staphylococcus.* Other pathogens: 5 or fewer of the following: *Abiotrophia, Achromobacter, Acinetobacter, Actinobacterium, Actinomyces, Aeromonas, Alcaligenes, Anaerococcus, Bacillus, Clostridium, Corynebacterium, Diplococcus, Eggerthella, Falcivibrio, Finegoldia, Fusobacterium, Haemophilus, Kluyvera, Lactobacillus, Micrococcus, Micromonas, Morganella, Mycobacterium, Peptococcus, Peptostreptococcus, Prevotella, Serratia,* and other *Staphylococcus* species; as well as pathogens identified as: Anaerobe, CDC group, Gram-positive coccus, Gram-negative bacillus, Gram-negative coccobacillus, and Gram-positive bacillus.

Table 15: Resistant Pathogen Phenotypes Identified from SSI COLO, Georgia 2015-2016

Resistant Phenotype	2015		2016	
	N	% of Total Pathogens	N	% of Total Pathogens
MRSA	25	3.6	32	4.6
VRE *Enterococcus faecium*	16	2.3	10	1.4
ESC *Escherichia coli*	15	2.2	21	3.0
MDR *Pseudomonas spp*	4	0.6	4	0.6
ESC *Klebsiella spp*	3	0.4	4	0.6
VRE *Enterococcus faecalis*	3	0.4	1	0.1
MDR *Acinetobacter spp*	1	0.1	0	0
CarbNS *Pseudomonas spp*	1	0.1	0	0
CRE *Enterobacter spp*	0	0	2	0.3
CRE *Klebsiella spp*	0	0	1	0.1
Total	68	9.8	75	10.7

Figure 14: Distribution of Pathogens Identified from SSI HYST, Georgia 2015-2016



CNS: Coagulase-negative *Staphylococcus.* Other pathogens: 5 or fewer of the following: *Achromobacter, Acinetobacter, Actinomyces, Anaerococcus, Arthrobacter, Bacillus, Bifidobacterium, Candida* and other yeast species, *Citrobacter, Corynebacterium, Enterobacter*, *Falcivibrio, Finegoldia*, *Morganella, Mycoplasma,* other *Staphylococcus* species, and *Peptococcus, Peptostreptococcus, Prevotella,* and *Serratia*; as well as pathogens identified as: anaerobes, CDC group, Gram-negative bacillus, Gram-positive bacillus, and Gram-positive coccus.

Table 16: Resistant Pathogen Phenotypes Identified from SSI HYST, Georgia 2015-2016

Resistant Phenotype	2015		2016	
	N	% of Total Pathogens	N	% of Total Pathogens
MRSA	8	5.0	13	6.2
MDR *Pseudomonas spp*	1	0.6	1	0.5
VRE *Enterobacter faecium*	1	0.6	0	0
Total	10	6.2	14	6.7

Methicillin-Resistant *Staphylococcus aureus*

Overview

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a type of *Staphylococcus aureus* that is resistant to several antibiotics. *Staphylococcus aureus* is commonly found on the skin or in the nose. It can be spread on contaminated medical equipment or by person-to-person contact. When these bacteria enter the bloodstream, they can cause bloodstream infections.

Blood cultures that test positive for MRSA by a recognized test meet the NHSN definition of laboratory-identified (LabID) MRSA. If the patient tests positive for MRSA on or after the third day of their inpatient hospital stay, it is considered hospital-acquired; otherwise it is considered community-acquired.

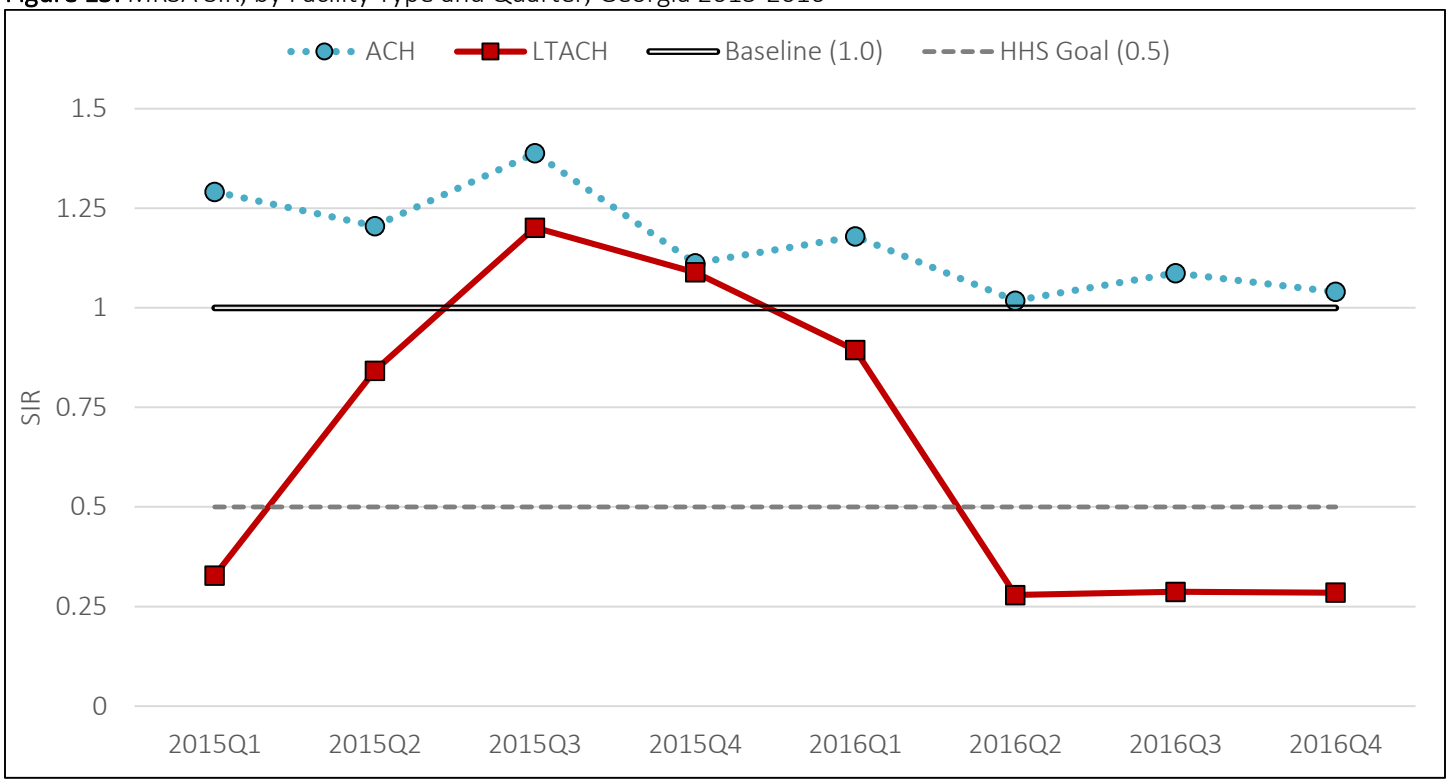
Overall MRSA Key Findings

MRSA SIR from the first quarter of 2015 to the fourth quarter of 2016:

- ACH decreased from 1.29 to 1.04
- LTACH decreased from 0.33 to 0.29 [Figure 15]

No SIR could be calculated for IRF because there was less than 1 infection predicted for each quarter of 2015 and 2016.

Figure 15: MRSA SIR, by Facility Type and Quarter, Georgia 2015-2016



MRSA in Acute Care Hospitals

Characteristics of Reporting Units

In 2015 and 2016, 102 ACH reported MRSA.

SIR by Quarter

The SIR decreased from 1.29 in the first quarter of 2015 to 1.04 in the fourth quarter of 2016 [Figure 15].

SIR and NNTP by Year

The 2015 SIR was 1.25 (95% CI 1.12, 1.39), meaning there were 25% more MRSA than predicted. The 2015 SIR was significantly higher than the national baseline and a reduction of 198 MRSA was needed to reach the HHS SIR goal of 0.50.

The 2016 SIR was 1.08 (95% CI 0.96, 1.21), meaning there were 8% more MRSA than predicted. The 2016 SIR was not significantly different from the national baseline and a reduction of 161 MRSA was needed to reach the HHS SIR goal of 0.5 [Table 17]. There was no significant difference between the 2015 and 2016 SIR.

MRSA in Freestanding Inpatient Rehabilitation Facilities

Characteristics of Reporting Units

In 2015 and 2016, 5 IRF reported MRSA.

SIR by Quarter

There was less than one predicted infection for every quarter of 2015 and 2016; therefore, no SIR could be calculated.

SIR and NNTP by Year

In 2015 there was less than one predicted infection; therefore, no SIR could be calculated.

The 2016 SIR for inpatient rehabilitation facilities was 0 (95% CI 0, 2.70), meaning there were no reported infections [Table 17].

MRSA in Long-Term Acute Care Hospitals

Characteristics of Reporting Units

In 2015, 15 LTACH reported MRSA; in 2016, 16 LTACH reported.

SIR by Quarter

The SIR decreased from 0.33 in the first quarter of 2015 to 0.29 in the fourth quarter of 2016 [Figure 15].

SIR and NNTP by Year

In 2015 the overall was 0.85 (95% CI 0.58, 1.21), meaning there were 15% fewer MRSA than predicted. The 2015 SIR was not significantly different from the national baseline and a reduction of 12 MRSA was needed to reach the HHS SIR goal of 0.50.

The 2016 SIR was 0.45 (95% CI 0.25, 0.75), meaning there were 55% fewer MRSA than predicted. The 2016 SIR was significantly lower than the national baseline. The HHS SIR goal of 0.5 was reached [Table 17]. There was a significant decrease between the 2015 and 2016 SIR.

Table 17: MRSA SIR, by Facility Type and Year, Georgia 2015-2016

CDC-Designated Location Type	2015			2016		
	N	SIR & 95% CI	NNTP	N	SIR & 95% CI	NNTP
Acute Care Hospital	102	1.25 (1.12, 1.39) ^	198	102	1.08 (0.96, 1.21)	161
Inpatient Rehabilitation Facility	5	.	.	5	0 (., 2.699)	.
Long-Term Acute Care Hospital	15	0.85 (0.58, 1.21)	12	16	0.45 (0.25, 0.78) ˅	0

^ Indicates an SIR value that is significantly higher than the national baseline; ˅ Indicates an SIR value that is significantly lower than the national baseline; . Indicates no SIR, 95% CI, or NNTP could be calculated

Clostridium difficile

Overview

Clostridium difficile is a spore-forming bacteria that is commonly found in nature and commonly colonizes the human digestive system. *Clostridium difficile* can cause severe diarrhea, colitis, and other gastrointestinal illness. The spores of *Clostridium difficile* are spread via contaminated surfaces and hands.

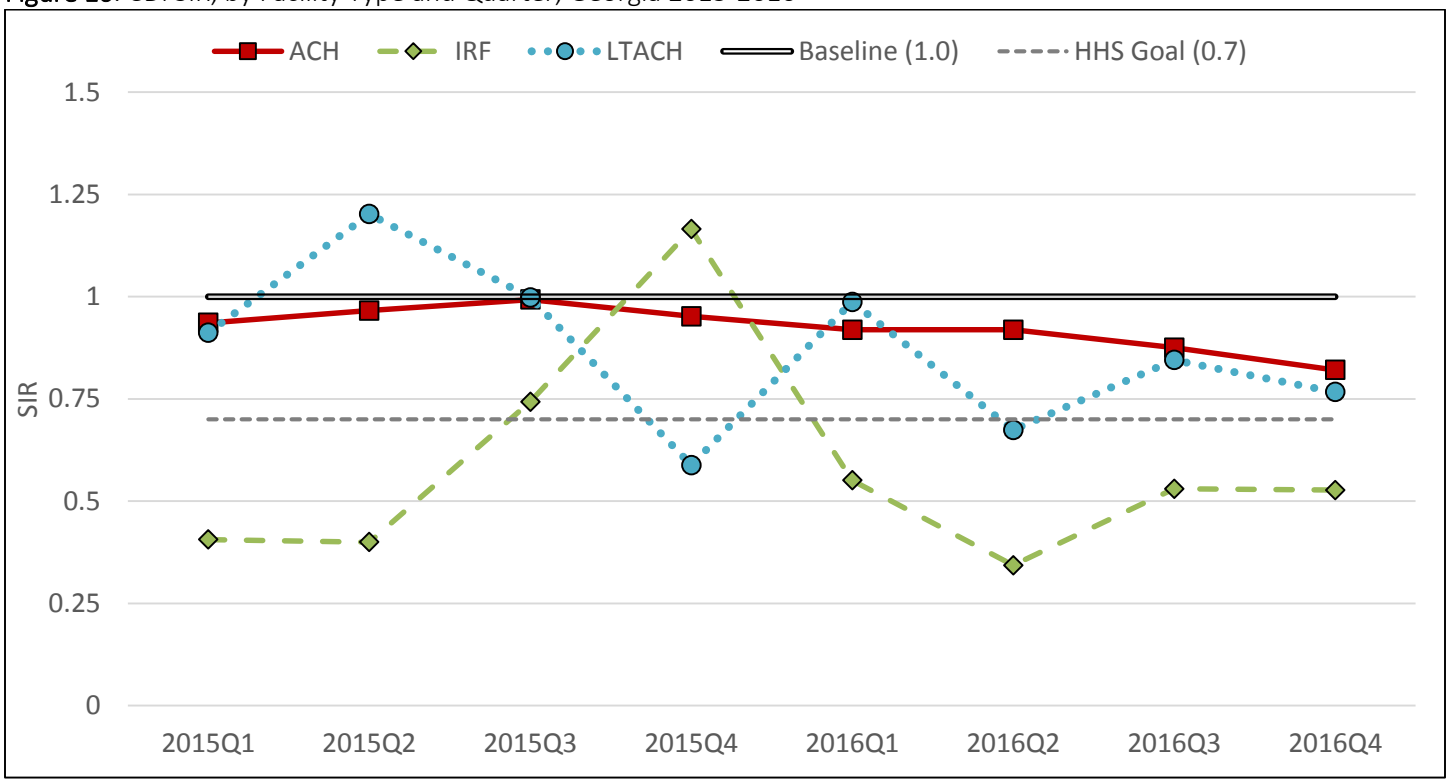
Stool cultures that test positive for *Clostridium difficile* by a recognized test meet the NHSN definition of laboratory-identified (LabID) *Clostridium difficile* infection (CDI). If the patient tests positive for CDI on or after the third day of their inpatient hospital stay, it is considered hospital-acquired; otherwise it is considered community-acquired.

Overall CDI Key Findings

CDI SIR from the first quarter of 2015 to the fourth quarter of 2016:

- ACH decreased from 0.93 to 0.82
- IRF increased from 0.41 to 0.53
- LTACH decreased from 0.91 to 0.77 [Figure 16]

Figure 16: CDI SIR, by Facility Type and Quarter, Georgia 2015-2016



CDI in Acute Care Hospitals

Characteristics of Reporting Units

In 2015 and 2016, 102 ACH reported CDI.

SIR by Quarter

The SIR decreased from 0.93 in the first quarter of 2015 to 0.82 in the fourth quarter of 2016 [Figure 16].

SIR and NNTP by Year

The 2015 SIR was 0.96 (95% CI 0.93, 0.99), meaning there were 4% fewer CDI than predicted. The 2015 SIR was significantly lower than the national baseline and a reduction of 749 CDI was needed to reach the HHS SIR goal of 0.70.

The 2016 SIR was 0.88 (95% CI 0.85, 0.92), meaning there were 12% fewer CDI. The 2016 SIR was significantly lower than the national baseline and a reduction of 546 CDI was needed to reach the HHS SIR goal of 0.70 [Table 18]. There was a significant decrease between the 2015 and 2016 SIR.

CDI in Freestanding Inpatient Rehabilitation Facilities

Characteristics of Reporting Units

In 2015 and 2016, 5 IRF reported CDI.

SIR by Quarter

The SIR increased from 0.41 in the first quarter of 2015 to 0.53 in the fourth quarter of 2016 [Figure 16].

SIR and NNTP by Year

The 2015 SIR was 0.72 (95% CI 0.43, 1.15), meaning there were 18% fewer CDI than predicted. The 2015 SIR was not significantly different from the national baseline and a reduction of 1 CDI was needed to reach the HHS SIR goal of 0.70.

The 2016 SIR was 0.49 (95% CI 0.27, 0.84), meaning there were 51% fewer CDI than predicted. The 2016 SIR was significantly lower than the national baseline. The HHS SIR goal of 0.70 was reached [Table 18]. There was no significant difference between the 2015 and 2016 SIR.

CDI in Long-Term Acute Care Hospitals

Characteristics of Reporting Units

In 2015, 15 LTACH reported CDI; in 2016, 16 LTACH reported.

SIR by Quarter

The SIR decreased from 0.91 in the first quarter of 2015 to 0.77 in the fourth quarter of 2016 [Figure 16].

SIR and NNTP by Year

The 2015 SIR was 0.91 (95% CI 0.79, 1.06), meaning there were 9% fewer CDI than predicted. The 2015 SIR was not significantly different from the national baseline and a reduction of 43 CDI was needed to reach the HHS SIR goal of 0.70.

The 2016 SIR was 0.82 (95% CI 0.70, 0.95), meaning there were 18% fewer CDI than predicted. The 2016 SIR was significantly lower than the national baseline and a reduction of 25 CDI was needed to reach the HHS SIR goal of 0.70 [Table 18]. There was no significant difference between the 2015 and 2016 SIR.

Table 18: CDI SIR, by Facility Type and Year, Georgia 2015-2016

CDC-Designated Location Type	2015			2016		
	N	SIR & 95% CI	NNTP	N	SIR & 95% CI	NNTP
Acute Care Hospital	102	0.96 (0.93, 0.99) ˅	749	102	0.88 (0.85, 0.92) ˅	546
Inpatient Rehabilitation Facility	5	0.72 (0.43, 1.15)	1	5	0.49 (0.27, 0.84) ˅	0
Long-Term Acute Care Hospital	15	0.91 (0.79, 1.06)	43	16	0.82 (0.70, 0.95) ˅	25

˅ Indicates an SIR value that is significantly lower than the national baseline

Appendix

Links for Further Information

About NHSN: https://www.cdc.gov/nhsn/about-nhsn/index.html

CMS Reporting Requirements: https://www.cdc.gov/nhsn/pdfs/cms/cms-reporting-requirements.pdf

NHSN SIR Guide: https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf

NHSN SUR Guide: https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sur-guide-508.pdf

NHSN Targeted Assessment for Prevention (TAP) Strategy: https://www.cdc.gov/hai/prevent/tap.html

NHSN Protocols for Acute Care Hospitals: https://www.cdc.gov/nhsn/acute-care-hospital/index.html

NHSN Protocols for Inpatient Rehabilitation Facilities: https://www.cdc.gov/nhsn/inpatient-rehab/index.html

NHSN Protocols for Long-Term Acute Care Hospitals: https://www.cdc.gov/nhsn/ltach/index.html

List of Acronyms

ACH	Acute care hospital
CAD	Cumulative attributable difference
CAUTI	Catheter-associated urinary tract infection
CDC	Centers for Disease Control and Prevention
CDI	*Clostridium difficile*
CLABSI	Central line-associated bloodstream infection
CMS	Centers for Medicaid and Medicare Services
COLO	Colon surgery
DPH	Georgia Department of Public Health
HAI	Healthcare-associated infections
HHS	United States Department of Health and Human Resources
HSYT	Abdominal hysterectomy
ICU	Intensive care unit
IRF	Inpatient rehabilitation facility
LabID	Laboratory identified
LTACH	Long-term acute care hospital
MRSA	Methicillin-resistant *Staphylococcus aureus*
NHSN	National Healthcare Safety Network
NICU	Neonatal intensive care unit
NNTP	Number of infections needed to prevent
SIR	Standardized infection ratio
SSI	Surgical site infection
SUR	Standardized utilization ratio
TAP	Targeted assessment for prevention